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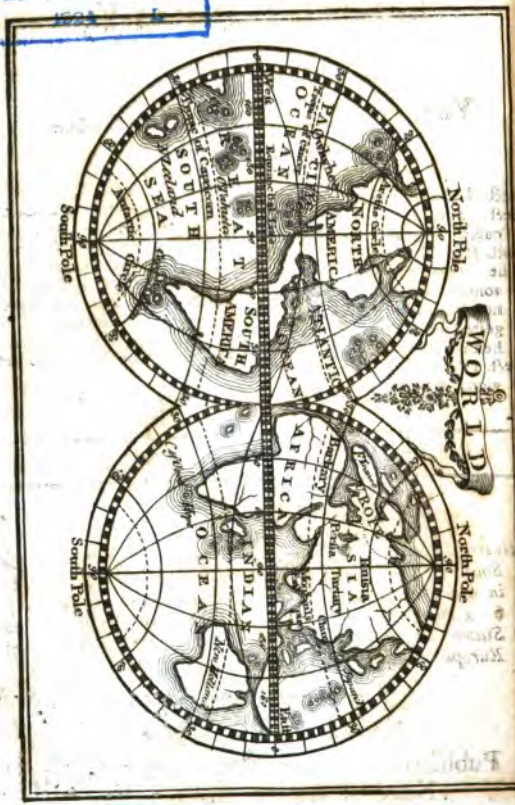

ELEMENTS

OF

GEOGRAPHY,

DESIGNED FOR

Young Students in that Science.

IN SEVEN SECTIONS.

BY BENJAMIN WORKMAN, A. M.

THE THIRTEENTH EDITION.

Illustrated with, 1. *A Map of the World.* 2. *A Plate of the Solar System.* 3. *A Plate of the Seasons.* 4. *A Globe in a darkened Room.* 5. *A Representation of Eclipses.* 6. *A Map of North America.* 7. *A Map of the United States.* 8. *A Map of South America.* 9. *A Map of Europe.* 10. *A Map of Asia.* 11. *A Map of Africa.*

PHILADELPHIA:

Published by JOHN M'CULLOCH, No. 1, North Third Street——1809.

W. M'Culloch, Printer.

District of Pennsylvania, To wit:

BE IT REMEMBERED, That on the twenty-ninth day of October, in the thirtieth year of the independence of the United States of America, A. D. 1805, *John M'Culloch*, of the said District, hath deposited in this office, the title of a Book, the right whereof he claims as Proprietor, in the words following to wit:

"Elements of Geography, designed for Young Students in that Science. In seven Sections. Sect. I. Of the Solar System. Sect II. Of the Earth in particular. Sect. III. Of Maps and Globes. The foregoing sections contain the Scientific or Astronomical part of Geography, digested in a clear and comprehensive manner. Sect. IV. Of the different Religions, Governments, Languages, Civilization, and Commerce of Nations, with an Outline of Universal History. Sect. V. Of the Political Divisions of the Earth into Empires, Kingdoms, &c. or the Historical part of Geography. Sect. VI. Of Natural Philosophy: or the Properties of Matter. Sect. VII. Of Chronology.—By Benjamin Workman, A. M. The eleventh Edition much improved and enlarged. Illustrated with, 1. A Map of the World 2. A Plate of the Solar System. 3. A plate of the Seasons. 4. A Globe in a darkened room. 5. A Representation of Eclipses. 6. A Map of North America. 7. A Map of the United States. 8 A Map of South America. 9. A Map of Europe. 10. A Map of Asia. 11. A Map of Africa.

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D. CALDWELL, *Clerk*
of the District of Pennsylvania.

PREFACE

TO THE THIRTEENTH EDITION.

THE title page has already declared the contents of this little book; and the twelve editions it has gone through ſince its firſt publication, are ſufficient evidences of its utility as a Compendium of Geography.

The Editor has been, in every edition, careful to inſert ſuch improvements as comported with his plan, both in the Scientific and Hiſtorical part, in order that the preſent ſtate of things might always be preſented to the young ſtudent.

In this Edition is inſerted, an Article, to explain the Equation of Time;—on Alphabetical Writing:—of the Dionyſian Period;—to find the Dominical Letter; and from the Dominical Letter to find on what day of the week, any given day of the month will fall;—with ſeveral other additions. And the Maps have been all repaired.

The ſucceſs the work has met with, has ſtimulated the exertions of the Editor to render it ſtill more worthy of the public favour.

JOHN M'CULLOCH.

May 2d, 1809.

PUBLISHED BY JOHN M'CULLOCH,

Geographical Queſtions, adapted to Workman's Syſtem; to which is appended, Promiſcuous Queſtions, on the Study of Geography in General. Price 25 cents.

Epitome of Workman's Geography, containing ſuch parts only as are neceſſary to commit to memory.——Publiſhed at the deſire of Sundry teachers. Price 25 cents.

DIRECTIONS TO THE BINDER.

ELEMENTS, &c.

SECT. I.

Of the Solar System.

1. GEOGRAPHY is a deſcription of the Earth, ſhewing its real and imaginary lines and diviſions. The word is derived from the Greek words *Ge*, the Earth, and *Grapha*, to deſcribe.

2. The elementary part of Geography is ſo blended with aſtronomy, that a proficiency cannot be acquired in the one, without a competent knowledge in the other.

3. Aſtronomy is that ſcience which exhibits the magnitude, order, motions, and diſtances, of the heavenly bodies; and teaches how to diſcover the time and quantity of eclipſes, and all other celeſtial phenomena. The term is derived from the Greek words *Aſtron*, a ſtar, and *Nomus*, a law or rule; and conſequently had not originally that extenſive meaning, which latter times have annexed to it.

4. The infinite abyſs of ſpace, unbounded in every direction, which the Greeks called *To pan*, every thing, the whole; the Latins *Inane*, the

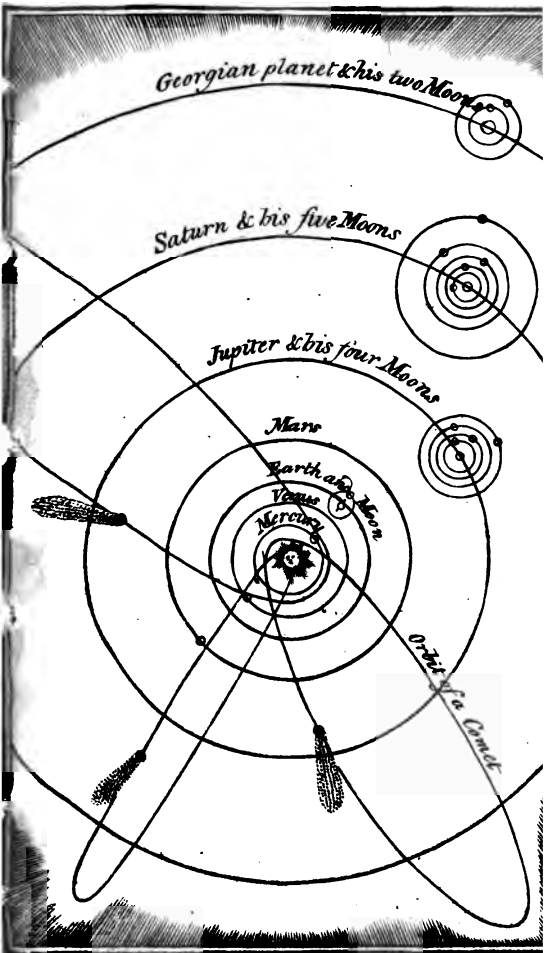
void; and we the Univerſe, comprehends innumerable Suns, round each of which, as a centre, probably revolve a ſyſtem of other bodies, called Planets or Worlds, receiving their light and heat therefrom. Now, to have a juſt notion of any of theſe ſuns, with his ſyſtem of worlds moving round him, it will be ſufficient to exhibit briefly, a juſt and natural idea of the Solar or Mundane Syſtem: that is, the Syſtem of our ſun, ſo called from the Latin words, *Sol*, the ſun, and *Mundus*, the world.

5. The Sun, (☉) that immenſe and amazing globe of fire, and the fountain of light and heat to the whole ſyſtem, is about a million of times larger than our earth, and placed near the centre of our ſyſtem, giving light and heat to ſeven primary, and fourteen, (or perhaps more) ſecondary planets, on opaque ſpherical bodies, which make their revolutions round him, from weſt to eaſt in leſs or more time, according to their diſtances from him.

6. Mercury (☿) is the neareſt to the ſun; it is twenty times leſs than the earth, and revolves round the ſun in two months and twenty eight days.

7. Venus, (♀) the ſecond planet in the ſyſtem, is exactly as large as the earth, and revolves round the ſun in ſeven months and fifteen days. Venus and Mercury, but eſpecially the former, become evening and morning ſtars by turns, as ſhall be more fully explained farther on.

8. The Earth (⊕) is the third planet from the ſun; it moves round him in three hundred and ſixty


Georgian planet & his two Moons
Saturn & his five Moons
Jupiter & his four Moons
Mars
Earth and Moon
Venus
Mercury
Orbit of a Comet

ſixty five days, and ſix hours, nearly, or one year; and being at a greater diſtance from the ſun than the two former planets, and therefore receiving leſs of his light and heat, to make up the deficiency, the wiſe Author of Nature has cauſed a ſecondary planet called the Moon, (☽) to move round him in twenty-ſeven days and an half. The moon receives her light and heat from the ſun, and reflects the ſame upon the earth; which in ſome meaſure compenſates for the abſence of the ſun in the nights, and winter ſeaſon.

9. Mars, (♂) the fourth in the ſyſtem, is about one fifth as large as the earth, and moves round him in ſomething leſs than two years.

10. Jupiter, (♃) is the fifth planet from the ſun, and the largeſt that has yet been diſcovered, being near a thouſand times larger than the earth, and five times more remote from the ſun. Jupiter revolves round the ſun in twelve years nearly, and has four ſatellities or moons, moving round him: they receive their light and heat from the ſun, and reflect the ſame upon Jupiter, as our moon does upon the earth. He is alſo ſurrounded by dark circular ſpaces, or zones, called his belts; which are either places on his ſurface, that do not reflect light ſo well as the other parts: or dark clouds in his atmoſphere, that remain undiſperſed.

11. Saturn, (♄) is the next in order of the ſyſtem, and, until within theſe few years, was ſuppoſed the moſt remote from the ſun. Saturn is about half as large as Jupiter, and is nearly

thir

thirty years revolving round the sun. He has seven moons moving round him, whereof two have been discovered lately by Dr. Herschel: and a prodigious ring or belt about him, placed edgeways, but detached, nearly to the distance of one of his semi-diameters from him: and the breadth of the ring is equal to another semi-diameter.

12. Georgium Sidus, (♅) or the Georgium planet, is the most distant from the sun as yet discovered. It is eighty times as large as the earth, and moves round the sun in about eighty three years. Its discoverer, Dr. Herschel, who called it the Georgian Planet, in honour of king George III. his patron, has found out six moons belonging to it. The distance of this planet from the sun, is nineteen times that of the earth's; and the sun appears three hundred and sixty times less, and his rays more faint, to its inhabitants than to us. Most astronomers call this planet, Herschel.——Thus,

Round the Sun, the bright centre and parent of noon,
Fly Mercury, Venus, the Earth, and her moon;
Mars marks the next orbit; then Jupiter shines,
With four moons, and his belts, which are circular lines;
Saturn boasts a vast ring; his attendants are seven;
Last, Herschel, with six moons, rolls through the heaven.

13. Besides the motion of the planets round the sun, called their Yearly, or Annual Motion, they have another round their own axis, from west to east, called their Diurnal or Daily Motion. So that each planet has a two fold motion, an annual and a diurnal; but the sun has only the latter; he revolves round his axis from

west

weſt to eaſt, in twenty-five days and an half.—The times of the diurnal revolutions of four of the planets only are yet known, viz. Venus, the Earth, Mars, and Jupiter. The proximity of Mercury to the ſun, and the immenſe diſtance of Saturn and the Georgium Sidus, have, as yet, baffled the attempts of aſtronomers to aſcertain the times of their revolutions on their axis. Venus turns once round in twenty four of our days nearly; the Earth in twenty-four hours; Mars in twenty four hours, forty minutes; and Jupiter in nine hours, and 56 minutes.

14. Mercury and Venus are called inferior Planets, becauſe the earth's Orbit* includes theirs: but Mars, Jupiter, Saturn, and Georgium Sidus, are called Superior Planets, becauſe their orbits include the earth's. The inferior planets will ſometimes appear eaſt of the ſun, and ſometimes weſt, according to the part of their orbits they are in: when eaſt, they are Evening Stars, and when weſt Morning Stars. Venus at moſt, can ſet but four hours and a quarter after the ſun, and riſe four hours and a quarter before him; and Mercury two hours. When they riſe and ſet with the ſun, if they be in the remote part of the orbit, we call this the Superior Conjunction: but if in the neareſt part, the Inferior Conjunction: at which time, if they fall

* The path, or imaginary circular line deſcribed by a planet's centre, in moving round the ſun, is called its Orbit.

fall exactly between the earth and the ſun, then ſuch a phenomena is called a tranſit, and the planet will appear with a black ſpot paſſing over the ſun: theſe tranſits happen but ſeldom. As the orbits of the ſuperior planets include that of the earth, therefore they will ſometimes appear quite oppoſite to the ſun, that is, riſe when he ſets, and ſet when he riſes; and this is called the time of their oppoſition; they may riſe and ſet alſo with the ſun, like the inferior planets: Hence the ſuperior planets have both conjunctions and oppoſitions; but the inferior planets have only conjunctions.

15. The planets in moving round the ſun, are nearer to the ſun at one time than another, for their orbits are not perfect circles, but ellipſes: and the ſun is placed in one of the foci, which are two points at ſome diſtance from the centre; and the diſtance of either focus from the centre is called the eccentricity of the orbit. In the earth's orbit, the eccentricity is ſeventeen parts of a thouſand: ſo that if the mean diſtance of the earth from the ſun be ſuppoſed a thouſand equal parts, the diſtance of the earth when neareſt the ſun, is ſeventeen parts leſs than a thouſand: but when fartheſt from him, in the oppoſite part of the orbit, ſeventeen parts more than a thouſand. The point in a planet's orbit, neareſt the ſun, is called the Perihelion, and the oppoſite point, the Aphelion. Perihelion from the Greek words, *Peri*, about, or near to, and *Helios*, the ſun: Aphelion, from *A*, wanting, or abſent from, and *Helios*, the ſun.

ſun. The earth is in its perihelion about the latter end of December: and in its aphelion the latter end of June.

16. It has already been mentioned that the earth has one moon, Jupiter four, Saturn ſeven, and the Georgian planet ſix. Theſe moons are called Secondaries, or planets of the ſecond order, in contradiſtinction to the others, which are called Primaries, or, chief Planets. They are alſo called Satellites, which is the Latin for *guards*: becauſe, like guards, they attend their primaries continually moving round them, from weſt to eaſt, as they, in their immenſe orbits, revolve round the ſun. Planets were ſo called from the Greek word, *Planetes*, a wanderer: for they appear, to the inhabitants of the earth, to wander, or change their poſitions in the heavens continually.

17. Comets are another ſort of planets, moving, in all directions, round the ſun, in orbits ſo very eccentric, that ſome of them in their perihelions are more than a thouſand times nearer the ſun, than in their aphelions. In their return from their aphelions, their motion is continually accelerated by the attraction of the ſun: ſo that by the time they reach their perihelions, their velocity is immenſely great: but having paſſed their perihelions, their velocity is continually diminiſhed by the ſun's attraction, until they reach their aphelions, when it is the leaſt: and in the oppoſite points of their aſcent and deſcent, their velocity is the ſame. Some comets have paſſed ſo near the ſun, as to be only the

the diſtance of one of his diameters from him. They are ſo much heated in their perihelion, that they project tails, or a luminous appearance, like flowing hair, to a prodigious length. In Sir Iſaac Newton's time, a comet paſſed ſo near the ſun, that he calculated its heat to be three thouſand times greater than that of a red hot iron; and that it would be two hundred years in cooling. Comet is derived from the Greek word *Kome*, hair: and hence they were called Hairy Stars. Our knowledge of the number and revolutions of comets is very imperfect.

18. The fixed Stars are ſo inconceivably diſtant from us, that a cannon ball would take ſeven hundred thouſand years in reaching Sirius, which is ſuppoſed the neareſt to us: ſuppoſing it diſcharged from the earth, and continually to fly on with the ſame velocity it left the cannon's mouth. They are called Fixed, becauſe they never change their diſtances, or poſition in regard to each other.

19. The fixed ſtars are ſuppoſed to be of the ſame matter with the ſun, and made for the ſame ends; each of them being the centre of its proper ſyſtem of worlds, or planets, moving round it, as our ſun is.

"Conſult with reaſon, reaſon will reply,
Each lucid point that glows in yonder ſky,
Informs a ſyſtem in the boundleſs ſpace,
And fills with glory its appointed place.
With beams unborrowed, brightens other ſkies,
And worlds to thee unknown, with life and light ſupplies."

Theſe innumerable ſyſtems of ſuns and worlds, it is more than probable, and is in ſome meaſure

ſure verified by aſtronomical obſervations, revolve round ſome common centre of motion.—This centre of creation, may be called the Capital of the Univerſe: perhaps it is the throne of the Creator. From this ſource of all that is perfect, great, and magnificent, the Divinity upholds and governs the immenſe extent of his works, and preſerves order, beauty and harmony, throughout the ſtupendous fabric of the Univerſe.—

> "Theſe are thy glorious works, Parent of Good,
> Almighty, thine this univerſal frame,
> Thus wond'rous fair, thyſelf how wond'rous then!
> Unſpeakable ....yet theſe declare
> Thy goodneſs beyond thought, and pow'r divine;
> .....Join all ye creatures to extol
> Him firſt, Him laſt, Him midſt, and without end."

20. The particles of light are the ſwifteſt bodies we know of; they fly from the ſun to the earth in eight minutes, but a cannon ball would be twenty-five years in paſſing over the ſame ſpace, which is about ninety-ſix millions of miles.

21. All the planets, whether they be primaries or ſecondaries, are opaque ſperical bodies, which receive their light and heat from the ſun, therefore, that half of each which is next the ſun will be illuminated, and the other half will be dark: and each will project a dark ſhadow behind it, which, becauſe the ſun is much the largeſt body, muſt end in a point. The ſhadows of the planets are therefore dark cones, whoſe lengths will be greater or leſſer, according to the planet's magnitude, and diſtance from the ſun. The length of the earth's ſha-

dow is about one hundred and seven of its diameter, and that of the moon's thirty diameters of the earth: Now since the moon's mean distance from the earth is also thirty diameters of the earth, therefore the moon's shadow at a mean distance will just reach the earth; but because her orbit round the earth is elliptical, and of consequence at one time she is nearer to the earth than the mean distance, and at another time more remote, therefore her shadow will sometimes extend a little beyond the earth, and sometimes fall short of it; but the earth's shadow always extends far beyond the moon, as its length is three times and a half her distance, and its diameter, at the moon, is nearly equal to three of her's: These things being premised,

22. The eclipses of the sun and moon are produced in a similar way: An eclipse of the moon is caused by the earth's falling in between the moon and the sun; and thereby intercepting his light; or, in other words, an eclipse of the moon is caused by the moon's falling into the earth's shadow. An eclipse of the sun is produced by the moon's passing between the earth and the sun, or what is the same thing, by the moon's shadow striking the earth. In eclipses of the moon, that luminary absolutely loses its light; but in those of the sun, he does not lose his light, the moon only intercepting it from the earth for that time: and hence solar eclipses are properly eclipses of the earth. There is another difference between lunar and solar eclipses; which

which is, that the moon may be totally darkened for near two hours; but no more than a few miles of the earth's surface can be totally deprived of the sun's rays, for above two minutes.

23. Jupiter's moons, like ours, are eclipsed every time they pass through his shadow, these eclipses happen very frequently, and are of special use in determining the longitude of places on our earth; but the brevity of our plan prevents us from entering into the nature and utility of these curious phenomena.—The word eclipse is derived from the Greek, *Ekleipo*, to faint or swoon away: and consequently in respect to the moon the term is very well applied; but in respect to the sun, it does not answer so well; for he never faints away, or loses his light, as was said before.

24. The moon's face seems to assume various forms to the earth: for, from the new moon to the full, which is about fourteen days and eighteen hours, it gradually increases; then from the full moon to the new, it gradually decreases: and hence it is said the moon's Crescent and Decrease. In the Crescent the moon first appears *falcated*, (crooked); next *bisected* (halfed, or half full); afterwards *gibbous* (round backed); then *full*; in the decrease, first *gibbous*, next *bisected*, again *falcated*, then *dark*. These different appearances are called her Phases, or Faces, from the Greek word, *Phases*, an appearance. The reason whereof is, because she shines with the borrowed light of the sun, and reflects it to the earth: and since only her

half

half next the ſun is always illuminated, therefore, in her revolution round the earth, ſhe muſt neceſſarily turn a greater or leſſer portion of this enlightened hemiſphere to us, according to her different poſitions in reſpect to the ſun, and of conſequence, aſſume ſuch different phaſes. The eclipſes of the ſun always happen at the *change*, for in that caſe the ſun and moon being in conjunction, and the dark ſide of the moon turned to the earth, if ſhe fall exactly between the ſun and the earth, there is neceſſarily an eclipſe. The eclipſes of the moon happen at the *full moon*, when the ſun being oppoſite to her, and her enlightened ſide turned to the earth, if ſhe fall exactly into the earth's ſhadow, ſhe conſequently muſt ſuffer an eclipſe, that is, loſe the ſun's light.

25. The inferior planets, Mercury and Venus, ſhew the ſame phaſes nearly to the earth as the moon: but almoſt the whole of the enlightened hemiſphere of the ſuperior planets is conſtantly turned to the earth; therefore theſe planets ſeem always to ſhine with a full face.

26. By reaſon of the moon's vicinity to the earth, ſhe appears as large as the ſun: yet the ſun is large as to be more than ſufficient to fill her orbit; for his diameter is about an hundred times that of the earth's, but the diameter of her orbit, is only equal to ſixty of the earth's diameters.

27. The earth exhibits the ſame phaſes to the moon, that ſhe does to us; for the earth and moon are mutually moons to each other: but

with

with this difference however, that only one half of the moon has the benefit of the earth's light, because her revolution round the earth is performed in the very same time that she turns once round on her axis, and consequently she always turns her same side to us; whereas every part of the earth receives moon-light, on account of its turning all its sides to the moon.

28. Of all the satellites or secondary planets yet known, our moon bears the greatest proportion to her primary, the Earth. She is nearly $\frac{1}{49}$ part of the earth's magnitude,—her diameter being about 2200 English miles. Her surface is exceedingly uneven, abounding in high mountains, and deep vallies. Dr. Herschel has discovered that some of her mountains are volcanoes; and that she is surrounded with an atmosphere, which, doubtless like ours, is designed for the reception of animals: Hence we may rationally conclude that she is inhabited.

Note. Several new planets have lately been discovered; Ceres, by Piazzi; Uranus, with six satellites, by Dr. Herschel; Pallas, by Dr. Olbers; Juno, by Mr. Harding. The inclination of Ceres' orbit to the ecliptic is about 10 degrees; and that of Juno, 13 degrees; and that of Pallas, 35 degrees; so that the limits of the zodiac must now be extended from 8 to 35 degrees on each side of the ecliptic, to comprehend these newly discovered planets. Their magnitude or revolution have not been yet particularly ascertained.

SECT II.

Of the Earth in particular.

1. Having given a curſory view of the ſyſtem of the univerſe, with the different phenomena of the celeſtial bodies, we come now to conſider the earth more particularly: a general knowledge of the figure and motions of which, and of the various real and imaginary lines and diviſions upon it, is abſolutely neceſſary in the ſcience of geography.

2. The figure of the earth is nearly that of a ſphere or globe; that is, a round ſolid body, having every part of its ſurface equally diſtant from a certain point within it called its centre. Now, although the earth is not a perfect ſphere, as will be ſhewn farther on, yet it differs ſo little from one, that in geography it may be ſafely conſidered as ſuch.

"We clearly demonſtrate the earth to be round,
Since ſuch a form fitteſt for motion is found;
The higher the eye is, the proſpect more vaſt,
And a ſhip's hull appears not ſo ſoon as her maſt;
Round the earth the bold mariner often has been,
And the reſt of the planets are circular ſeen,
This too in all lunar eclipſes is ſhewn,
For the ſhadow is round on the face of the moon."

3. The earth is generally called the Terraqueous or Terreſtrial globe, from the Latin words, *Terra*, land, and *Aqua*, water, being compoſed of land and water: And becauſe the heavens apparently form a concave or hollow ſphere about the earth, which aſtronomers term the

the Celeſtial Sphere, from the Latin word, *Cœlum*, heaven. Hence there are two ſpheres, a terreſtrial and celeſtial.

4. The *Axis* of the earth is an imaginary right line paſſing through its centre, and ending at two oppoſite points on its ſurface, called the North and South Pole; and if the axis be conceived to be produced to the heavens, it will meet them in the celeſtial poles, whereof that in the north hath a ſtar very near it, which is therefore called the Pole Star. Pole is derived from the Latin, *Polus*, the centre about which the ſtars ſeem to turn round.

5. The earth turns round on its axis from weſt to eaſt every twenty four hours, and thereby cauſes all the celeſtial bodies to revolve apparently from eaſt to weſt in the ſame time; making the viciſſitudes of day and night: and hence this revolution is called its Diurnal, or Daily Motion.

6. Becauſe the earth is a globe, therefore the imaginary lines on its ſurface as alſo thoſe in the heavens, are *Circles*: and theſe are divided into Greater or Leſſer. A greater circle encompaſſes the globe in the middle, and divides it into two equal parts, called Hemiſpheres. A leſſer circle does not encompaſs it in the middle, but divides it unequally. Leſſer circles are commonly parallel to ſome great circle.

7. Every circle is ſuppoſed to be divided into 360 equal parts, called *Degrees*; and each degree into 60 equal parts, called *Minutes*; each minute in 60 *Seconds*, &c.

8.

8. A degree of a great circle, on the earth, contains 60 geographical or nautical miles, (minutes), or $69\frac{1}{2}$ Engliſh miles. Conſequently, the earth's diameter is nearly 8000, and its circumference 25000 Engliſh miles.

9. The principal great circles pertaining to geography, are the Equator, Meridian, Ecliptic, Horizon, &c. The leſſer circles are, Parallels of Latitude, Tropics, Polar Circles, &c.

10. The *Equator* is a circle running eaſt and weſt, ninety degrees from each pole: that is, it encompaſſes the globe in the middle, being every where equally diſtant from the poles, and divides the globe into the northern and ſouthern hemiſpheres. As there are two ſpheres, ſo there are two equators, a terreſtrial, and celeſtial; the one exactly under the other. The word is derived from the Latin, *Equo*, to equalize; becauſe it divides the globe equally. This circle is alſo called the Equinoctial line, from the Latin *Equus*, equal, and *Nox*, night: becauſe when the ſun comes to it, about the 20th of March, and the 22d of September, the days and nights are equal in all parts of the earth. Mariners ſometimes term it the Line.

11. *Meridians* are circles running north and ſouth, paſſing through both poles, cutting the equator at right angles, and dividing the globe into eaſtern and weſtern hemiſpheres. They are infinite in number, ſo that every place on the earth has its terreſtrial and celeſtial meridian. Meridian is derived from the Latin word, *Meridies*, mid-day; for when the ſun is on any meridian

meridian, it is noon, or mid-day, to all places upon one half of it, from pole to pole; but to places on the other half it is midnight.

12. The *Ecliptic* croſſes the equator obliquely, in two oppoſite points, Aries and Libra; one half thereof extending 23½ degrees north of the equator, and the other as far ſouth. This circle is the ſun's apparent path in the heavens, and conſequently the earth's path or orbit deſcribed in its annual motion from weſt to eaſt round the ſun. Ecliptic is derived from the word eclipſe: becauſe the eclipſes always happen when the moon at change or full is in, or near it. The ecliptic, therefore, is a circle that pertains to the celeſtial ſphere alone. Its oblique poſition to the equator (being a conſequence of the inclination of the earth's axis to the plane of its orbit,) is the principal cauſe of the variety of the ſeaſons: for if the equator and ecliptic were coincident, there would be no ſenſible change of the ſeaſons: and this is the caſe in the planet Jupiter.

13. The ecliptic is divided into twelve equal parts called *Signs*, each being thirty degrees. The ſigns have been named after twelve conſtellations of ſtars, through which they paſſed about two thouſand years ago; but by the proceſſion of the equinoxes the conſtellations are now moved nearly the ſpace of a ſign to the eaſtward. Their names, characters, and order, are as follows, viz.

Northern Signs.

1. ♈ Aries, the Ram.
2. ♉ Taurus, the Bull.
3. ♊ Gemini, the Twins.
4. ♋ Cancer, the Crab Fiſh.
5. ♌ Leo, the Lion.
6. ♍ Virgo, the Virgin.

Southern Signs.

7. ♎ Libra, the Balance.
8. ♏ Scorpio, the Scorpion.
9. ♐ Sagittarius, the Archer.
10. ♑ Capricornus, the Mountain Goat.
11. ♒ Aquarius, the Water Bearer.
12. ♓ Piſces, the Fiſhes.

The Student may repeat the Signs in verſe :

"The Ram, the Bull, the heavenly Twins,
The Crab, and next the Lion ſhines,
The Virgin, and the Scales:
The Scorpion, Archer, and the Goat,
The Man that holds the Watering Pot,
And Fiſh with glittering tails."

14. That broad circle, or zone, extending about 8 degrees on each ſide of the ecliptic, and containing the twelve ſigns or conſtellation, with the apparent places of the moon and planets, is called the *Zodiac*; from the Greek, *Zodiakos*, a circle or ſpace of animals. Becauſe the conſtellations were ſuppoſed to reſemble the outlines of ſome living creature.

15. *Equinoctial Points*, or *Equinoxes*, are thoſe two points in which the ecliptic cuts the equator,

tor. That at the beginning of Aries, is called the Vernal Equinox; becauſe the ſun paſſes through it in ſpring, March the 20th: the other in the beginning of Libra, is called the Autumnal Equinox, the ſun paſſing through it in autumn, September the 22d. The derivation of Equinox being the ſame as Equinoctial, is already explained.—According to ſome chronologers, the creation of the world was at the time of the autumnal equinox.

16. The *Solſtitial points*, or *Solſtices*, are the firſt points of Cancer or Capricorn, being 90 degrees from the equinoxes, and 23½ degrees from the equator, which is the greateſt diſtance the ſun declines north or ſouth. That at the beginning of Cancer is called the Summer Solſtice; becauſe the ſun paſſes through it in ſummer, on the 21ſt of June: the other, in the beginning of Capricorn, is called the Winter Solſtice, the ſun paſſing through it in Winter, on the 21ſt of December. Solſtice is derived from the Latin words *Sol*, the ſun, and *Sto*, to ſtand, for at the time of each ſolſtice, the ſun's declination, or diſtance from the equator, and conſequently the length of the day, changes ſo little for ſeveral days, that he ſeems to ſtand ſtill. The diſtinctions applied to the equinoxes and ſolſtices, ſerve the northern hemiſphere only; for in the ſouthern hemiſphere the ſeaſons are reverſed.

17. The *Colures* are two meridians paſſing through the equinoctial and ſolſtitial points. Theſe circles being only uſed in aſtronomical problems,

problems, therefore cannot properly be conſidered as pertaining to geography.

18. The *Horizon* is that circle in the heavens which bounds our view, and divides the upper and viſible hemiſphere from the lower and inviſible; the ſun, moon, and ſtars, riſing and ſetting therein. Mariners divide the horizon into 32 equal parts, called points; whereof eaſt, weſt, north, and ſouth are cardinal ones, becauſe they divide it into four equal parts, of 90 degrees each. The point in the heavens directly over our heads is called the *Zenith*; and that oppoſite to it, being directly under our feet, the *Nadir*. Thoſe two points are every where 90 degrees from the horizon.—Zenith and Nadir are Arabic words, ſignifying the higheſt and loweſt points in the heavens. Horizon is derived from the Greek, *Horizo*, to bound, to limit; becauſe it bounds or limits the view of a ſpectator on earth.

19. That circle parallel to, and 18 degrees below the horizon, is called the *Crepuſculum*, or terminator of twilight; for when the ſun comes to it in the morning, twilight commences, and when he arrives at it in the evening it ends.

20. Of all geographical terms, *Latitude* and *Longitude* are the moſt important: for by theſe the ſituation of any place on the earth is determined.

21. *Latitude* is the neareſt diſtance of a place upon the earth from the equator, either north or ſouth, reckoning in degrees upon the meridian of that place. The latitude of either pole is

is 90 degrees, which is the greateſt poſſible, therefore the latitude of any other place is leſs than ninety degrees. A ſpectator on the terreſtrial equator, has the two celeſtial poles in his horizon, and the celeſtial equator in his zenith; but if he move one degree north of either pole, then will that pole ſeem to riſe one degree above its horizon, and the other be depreſſed one degree below it; and if he move on in the ſame direction, every degree he goes from the equator will elevate the pole one degree; conſequently the elevation of the pole is equal to the latitude. For inſtance, Philadelphia being in latitude 40 degrees north, therefore the north pole is 40 degrees above its horizon, and the ſouth pole is 40 degrees below it.

22. *Longitude* is the diſtance of any meridian either eaſt or weſt, from the firſt meridian; reckoning in degrees on the equator. It can never exceed 180 degrees. The firſt meridian is any meridian geographers fix upon, as London, Paris, Waſhington, &c. Since the earth turns round on its axis from weſt to eaſt, at the rate of 15 degrees to the hour, conſequently, a place lying 15 degrees to the eaſtward of another, has the ſun upon the meridian one hour ſooner than the other. And at the rate of 15 degrees to the hour, 75 degrees make 5 hours, therefore the hour of the day at Philadelphia, which is in longitude 75 degrees weſt from London, is five hours later at London: ſo that when it is noon at Philadelphia, it is 5 o'clock in the evening at London.——The ancients imagined

the

that the earth was an extended plane, or oblong, whose breadth was from north to south, and length from east to west. The north or south situation of the places, was, therefore, expressed by the name latitude, from the Latin, *Latitudo*, breadth: the east and west, by Longitude, from *Longitudo*, length. And hence the original of these terms, so important in modern geography.

23. *Parallels* of *Latitude* are circles running east and west parallel to the equator. They are infinite in number, and gradually diminish toward each pole.

24. The *Tropics* are two circles parallel to the equator. The tropic of Cancer lies on the north side of the equator, $23\frac{1}{2}$ degrees from it; and the tropic of the Capricorn, $23\frac{1}{2}$ degrees on the south. These circles are the boundaries of the sun's apparent path: for he never goes more than $23\frac{1}{2}$ degrees north or south of the equator. Therefore the sun's declination, which is his distance at any time from the equator, can never exceed $23\frac{1}{2}$ degrees. Tropic is derived from the Greek, *Trepo*, to turn, or change; for when the sun comes to either tropic, he shifts his course, and turns back to the other. The sun is on the tropic of Cancer on the 21st of June, and on that of Capricorn, the 21st of December.

25. The *Artic*, and *Antartic*, or Polar Circles are $23\frac{1}{2}$ degrees from the poles, and $66\frac{1}{2}$ from the equator. The artic circle is so called from the Greek word, *Arktos*, a bear; because it crosses a con-

a conſtellation called the Bear : as is the antartic, from *Anti*, over againſt, and *Arktos*, a bear; becauſe it is oppoſite to the other.

26. The tropics and polar circles divide the earth into five ſpaces, called *Zones*, from the Greek, *Zone*, a belt, or girdle ; namely, one *torrid*, or burning zone, two *temperate*, and two *frigid* or frozen zones.

27. The torrid zone lies between the tropics, is 47 degrees broad, and has the equator paſſing through the middle of it. The ſun is always over ſome part of it : therefore it is exceeding hot or ſcorching.

28. The temperate zones lie between the tropics and polar circles. The northern one between the tropic of Cancer and the artic circle ; and the ſouthern between the tropic of Capricorn and the antartic circle. They are each 43 degrees broad, and called temperate, becauſe in them the heat and cold are moderate.

29. The frigid zones are included within the polar circles. The northern one bounded by the artic circle, and the ſouthern by the antartic. They are ſmall ſpaces, extending only $23\frac{1}{2}$ degrees from each pole ; and as the torrid or burning zone is ſo called on account of its ſcorching heat, ſo theſe are called frigid, or frozen on account of their extreme cold, and the immenſity of ice always found therein.

30. Climates are another ſort of diviſion of the earth's ſurface, uſed by ancient geographers, to aſcertain the ſituation of places from the equator ; but, which being now more accurate-

curately determined by latitude, are, therefore, in a great meaſure, exploded. Each hemiſphere contains thirty climates, whereof twenty-four are named hour climates; the other ſix, month ones. At the equator, the days are conſtantly twelve hours long; but in receding from it, towards either pole, they become unequal: ſo that the greater the latitude, the more does the longeſt day exceed twelve hours, and the ſhorteſt want of the ſame. At either polar circle, the longeſt day is exactly twenty-four hours; for the ſun ſeems juſt to touch the horizon at midnight, and then aſcend again. But from thence to the poles, the ſun in ſummer appears many days, and even months, without ſetting, and in winter as long without riſing; there being ſix months day, and ſix months night at the poles. That is, in the torrid zone, and both the temperate ones, the longeſt day in ſummer is leſs than twenty-four hours; but in the frigid ones it is ſeveral days or months long according to the proximity of the place to the pole.

31. The firſt hour climate commences at the equator, and ends at the parallel of latitude where the longeſt day is twelve hours and an half: and the ſecond from this parallel to that where it is thirteen hours long, and ſo on, each exceeding the other by half an hour in the length of the longeſt day, until we arrive at the polar circles, which is the limit of the twenty-fourth climate. There begins the firſt month one, and ends where the longeſt day is

a month

a month: thence to where it is two months, is the second, &c. to the pole, which terminates the last month climate, or thirtieth from the equator.

32. The inhabitants of the earth, in regard to their situation to each other, take the appellations of Periœci, Antœci, and Antipodes; but in regard to their shadows, Amphiscii, Ascii Heteroscii, and Periscii. The Periœci, from the Greek *Peri*, about, and *Oikeo*, to dwell, are those who live on the same parallel of latitude, but on different points of it, differing 180 degrees in their longitude, being on different semicircles of the same meridian. The length of their days and seasons agree; but it is noon to the one when it is midnight to the other.—The Antœci, from the Greek *Anti*, opposite, and *Oikeo*, to dwell, are situated on the same meridian, but in opposite latitudes. Their noons, and every other hour, are at the same instant of time, but the length of the day to the one is the length of the night to the other: and their seasons are opposite. The Antipodes, from the Greek, *Anti*, against, and *Podes* feet, are diametrically opposite, standing feet to feet, and situated on opposite parallels of latitude, and on different semicircles of the same meridian. The sun rises to the one when he sets to the other: hence the day to the one is night to the other; and summer, winter. The Amphiscii, from the Greek, *Amphis*, on both sides, and *Skia*, shadow, inhabit the torrid zone, having their meridian shadow one part of the

year projected towards the north, and the other part of the year towards the south. The sun twice in the year passes through their zenith, at which times they have no meridian shadow: and therefore are called Ascii, from the Greek, *A*, without, and *Skia*, shadow. The Heteroscii, from the Greek, *Heteros*, another, and *Skia*, shadow, live in the temperate zones. Those in the northern one, have their meridian shadow always projected towards the north pole, and those in the other towards the south pole. The Periscii, from the Greek, *Peri*, about, and *Skia*, shadow, are the inhabitants of the frigid zones, whose shadows, for several months in the summer, turn quite round.

33. It has been mentioned, that the earth is not a perfect sphere; for it appears, both from scientific demonstration, and a variety of actual experiments, that it is an Oblate Spheroid, or turnip like figure, whose axis is shorter than its equatorial diameter. It is, therefore, flattened at the poles, and raised at the equator: the proportion of the axis to the equatorial diameter being as 220 to 221. The spheriodical figure of the earth was first suggested by the immortal Sir Isaac Newton; who by pure dint of reasoning from the principles of gravitation, determined the fact; although opposed by Cassini, and other philosophers, who ungeometrically asserted, that it was a Prolate Spheriod, or egg-like figure, having its axis longer than its equatorial diameter: but these gentlemen soon afterwards ingenuously owned their mistake,

and

and became advocates for the true figure, ſo incontrovertibly eſtabliſhed by reaſon and actual experiment. The axis exceeding the equatorial diameter only one part out of 220, any allowance in geography, or even navigation, on account of its ſpheroidical forms, needs not to be taken into conſideration. The oblate figure of the earth is in conſequence of its rotation on its axis; and it would have been more flatted, had it revolved round more quickly: as in the planet Jupiter, whoſe axis and equatorial diameter are as 12 to 13: becauſe his diurnal rotation is performed in 9h. 56m. But Venus revolves ſo ſlowly, that her figure is almoſt a perfect ſphere. Spheroid is is derived from the Greek *Sphaira*, a ſphere, or globe, and *Eidos*, a ſpecies, or kind: becauſe it is a ſpecies of the ſphere.

34. The ſeaſons with us, in the northern hemiſphere, are directly contrary to the earth's approaching to, and receding from the ſun.—For the middle of our ſummer happens about the latter end of June, when the earth is in its aphelion; and the middle of winter about the latter end of December, when it is in its perihelion. The earth's diſtance from the ſun is only $\frac{1}{30}$ part more in the aphelion, than in the perihelion: and the intenſity of the ſun's rays, in the one caſe, is only $\frac{1}{17}$ part leſs than in the other. Hence, though the ſun's rays are abſolutely ſtronger in our winter than in our ſummer, yet the difference is ſo ſmall, that the effect is ſcarcely ſenſible. There is another circumſtance that nearly balances this, namely,

our ſummers are 8 days longer than thoſe in the ſouthern hemiſphere; for the earth's velocity being ſlower in the aphelion than in the perihelion, cauſes the ſun to appear to tarry 8 days longer in the northern ſigns than in the ſouthern. Moreover, in 13000 years the earth will be in its aphelion, the Latter end of December, and conſequently, the preſent ſituation of both hemiſpheres, in reſpect to the orbit, will then be reverſed; and in 13000 years afterwards, it will have returned to the place in which it is now. This revolution which is commonly called the Proceſſion of the Equinoxes, is produced by the moon's influence on the ſpheroidical figure of the earth, and was firſt accounted for by Sir Iſaac Newton. It is completed in 26000 years.

35. The great diſproportion between the heat in the ſummer and winter depends chiefly upon three cauſes, viz. the length of the day, the obliquity of the ſun's rays, and the quantity of the atmoſphere they paſs through. In ſummer, the days are long, the ſun's rays fall almoſt perpendicularly, and paſs through but little of the atmoſphere. But in the winter, the days are ſhort, the ſun's rays fall obliquely, and paſs through much of the atmoſphere. That the obliquity of the ſun's rays render them exceeding weak, is obvious to every one: for inſtance, the ſhadow of a building is many times larger in winter than in ſummer: hence it is evident, that the quantity of the rays intercepted by the building, have to ſcatter over a much greater extent

extent in winter than in ſummer, and therefore have ſo much leſs power.

36. Wind is a ſtream or current of air, produced by heat expanding or rarifying the air, and cold compreſſing or condenſing it. Between the tropics, and often to the latitude of 30d. north and ſouth, the wind conſtantly blows from the eaſt, except interrupted by mountains or temperate land, and that is called the Trade Wind by mariners. In the temperate or frigid zones it blows in all directions, but generally from the weſt; and theſe are called Variable Winds. Some being periodical, blowing ſix months one way, and ſix the other, are called Monſoons; theſe prevail moſtly in the Indian ocean, and Eaſt-Indies.

37. Tides are that regular motion of the ſea, according to which they ebb and flow twice in 24½ hours. They are cauſed by the moon's attraction; and increaſed or decreaſed by the ſun's attraction, which twice a month aſſiſts, and twice oppoſes hers. Hence ſpring or high tides, at new and full moon; and neap or low tides, at her firſt and laſt quarter. The ſpring tides are higheſt, and the neap tides loweſt at the equinoxes.

Of the Real and Natural diviſions of the Earth.

1. A *Continent* is a large tract of land: as Europe, America, &c. An *Iſland* is land ſurrounded by water: as Great Britain. A *Peninſula* is land almoſt ſurrounded by water. It

is derived from the Latin word, *Pene*, almoſt, and *Inſula*, an iſland. An *Iſthmus*, (from the Greek, *Iſthmos*, a narrow paſſage having water on each ſide,) is a neck of land joining the peninſula to the main land, or one main land to another.—*Promontories* or *Capes*, are high parts of land jutting into the ſea.—A *Coaſt*, or *Score*, is land that borders on the ſea.

2. An *Ocean* is a vaſt collection of water: as the Atlantic Ocean.—A *Sea* is a leſs collection of water, almoſt ſurrounded by land: as the Mediterranean ſea.—A *Lake* is a collection of water ſurrounded by land: as Lake Erie.—A *Gulf* or *Bay*, is a part of the ſea, nearly ſurrounded by land.—A *Strait* is a narrow paſſage into ſome ſea.—A *River* is a large ſtream of water emptying itſelf into ſome ſea, or lake, or another river.—*Brooks* are leſs ſtreams.

3. The terms applied to land and water may be compared thus;

A continent is ſimilar to an Ocean;
An Iſland to a Lake;
A Peninſula to a Gulf, or Bay;
An Iſthmus to a Strait.

3. There are two great continents, an eaſtern and a weſtern: Europe, Aſia, and Africa, compoſe the eaſtern; and America the weſtern. Some reckon New Holland a third Continent; others, an iſland: it is, however, the leaſt continent, but largeſt iſland in the world.

5. The water on the earth's ſurface is more than double the quantity of land; and as the ocean all lies contiguous, therefore properly forms

forms but one; nevertheleſs, geographers ſubdivide it into five, viz. the Northern Ocean, waſhing the northern ſhores of Europe, Aſia, and America, and ſuppoſed to ſurround the north pole; the Atlantic, or Weſtern Ocean, lying between Europe and Africa on the eaſt, and America on the weſt, at a medium of 3000 miles wide; the Pacific Ocean, between America on the eaſt, and Aſia on the weſt, in ſome parts 10,000 miles over; the Indian Ocean, between the Aſiatic continent and iſlands on the eaſt, and Africa on the weſt, 3000 miles wide; and the Southern Ocean, to the ſouthward of Africa and America, encompaſſing the ſouth pole.

6. The principal ſeas are, the Mediterranean, which divides Europe from Africa, it is 2000 miles long, and of an unequal breadth; the Baltic ſea, between Sweden and Germany; the Black, or Euxine ſea, between Europe and Aſia; the Red ſea which ſeparates Aſia from Africa; the Caſpian ſea in Aſia, which is more properly a lake: beſides others of leſſer note.

7. The *aſtronomical* or *imaginary* diviſions of the earth are Hemiſpheres and Zones; the *real* diviſions are Land and Water; and the *political* diviſions are the Empires, Kingdoms, States, &c. into which the land is ſubdivided.

SECT.

SECTION III.

Of Maps and Globes.

I. Of MAPS. In looking towards the north, the south is behind, the east on the right hand, and the west on the left.—In maps the north is generally at the top, the south at the bottom, the east on the right hand, and the west on the left. The degrees of latitude are numbered on the sides, and the degrees of longitude at the top and bottom. Lines running north and south are called Meridians, and those crossing the map from east to west, Parallels of Latitude.

Both on Maps and Terreſtrial Globes,

A coast is represented by a strong irregular line shaded on one side. A River by a strong crooked line, or by two lines shaded between, and gradually widening towards the mouth. Mountains, by shaded eminences, resembling waves. Forests, or Woods, by little trees. Lakes, Swamps, and Bogs, by shaded spaces within land. Shoals, and Sand Banks, by dotted spaces in oceans, seas, &c. Winds, and Currents of Water, by arrows. Cities, by small circles, or an appearance of building. Countries contiguous are divided by mountains, rivers, and strong dotted lines; and fine dotted lines bound provinces, or lesser divisions. Land is sometimes painted; the several countries by different colours, and the

the boundaries painted of a darker or a brighter shade.

To find any place on a map, having its latitude and longitude given.—*Rule.* The place is situated in the intersection of its meridian, and parallel of latitude; therefore, having found the degree of latitude on each side, and degree of longitude at the top or bottom, move one finger from the degree of latitude, east or west, the other finger from the degree of longitude, north or south: then the place sought will be found in the common angle of meeting.

II. *Description and Use of the Globes.*

There are two globes, a Terrestial and Celestial. The terrestial globe represents the earth; shews the land and water on its surface; with the situation of places, their latitudes, longitudes, length of their days, climates, &c. The celestial globe represents the concave surface of the heavens; teacheth a just knowledge of the rising and setting of the sun; the positions, magnitudes, distances, and constellations of the stars; with their risings, settings, right ascensions and declinations, &c.

Of the principal Circles belonging to the Globe.

The Equator, or Equinoctial Line, on either globe, is generally drawn broad, merely to attract the attension; yet the learner is to consider it without breadth, for a line in length

only

only. On the Terrestial equator is reckoned, in degrees, the longitude of any place, either east or west from the first meridian; and on the celestial equator, are reckoned, in degrees, or hours, the right and oblique ascension of the sun, moon, planets, and fixed stars.

The Ecliptic is drawn broad like the equator, and similarly divided; but commonly of a different colour. On it are reckoned the celestial longitudes of all the heavenly bodies. This circle belongs to the celestial globe, and therefore absurdly applied to the terrestial.

The Zodiac is very properly drawn on the celestial globe alone. It extends nine or ten degrees on each side of the ecliptic; and is usually chequered by arcs of great circles perpendicular to the ecliptic, and other lesser circles parallel to it: the use of which is solving problems relating to the moon and planets.

The meredians on either globes are generally 24 in number. This is intended to prevent confusion; for, as we said before, the meridians are innumerable. The Brazen Meridian, or brass hoop surrounding the globe, supplies the place of all the rest; and being graduated from the equator towards each pole, serves to ascertain the latitude of places on the terrestial globe, and the declination of the heavenly bodies on the celestial.

The Horizon is represented by the upper side of the broad wood circle into which the brazen meridian is slipped. On the surface

of

of the horizon are drawn several useful circles:—One of which contains the signs of the Zodiac, distinguished by their names and characters each being 30 degrees; Next to this is the Calender, disposed into months and days: Another circle contains the the 32 points of the compass: And the inner one is divided by the four cardinal points into four quarters, each subdivided into 90 degrees.

Lesser circles, on the terrestial globe, are Parallels of Latitude, particularly the tropics and polar circles; they are parallel to the equator, and run east and west.—Lesser circles, on the celestial globe, are the topics and polar circles parallel to the equator, and the circles parallel to the ecliptic, called Parallels of Celestial Latitude.

Appendants of the Globe.

The Hour Circle is a small circle of brass, divided into 24 hours; the upper 12 represents noon, and the lower 12 midnight. Its use is to tell the time of the rising and setting of the sun or stars; and what o'clock it is in any part of the world. In Ferguson's globes this circle is not brass, but applied to the globe itself, about each pole. And in Adam's globes is rejected altogether, and the problems better solved by applying the hours to the equator.

The Quadrant of Altitude is a thin piece of pliable brass, divided into ninety degrees, answering the degrees of the equator. Its use

is to tell the height of the sun or stars, and when they are due east or west; also the distance of the stars from one another, and the distance of one place from another.

An Explanation of some terms pertaining to the Celestial Globe.

Declination is the distance of the sun, or any stars, from the equator, in degrees; and is called North or South, according to which side of the equator the sun or star is on.

Right Ascension is the distance from Aries (in hours or degrees, on the equator; reckoned according to the order of the signs) to the brazen meridian, when the sun or stars is brought to the meridian.

Oblique Ascension is the distance from Aries (in hours or degrees, reckoned as above) to the horizon, when the sun or star rises.

Oblique Descension is just the reverse.

Amplitude is the distance in degrees, the sun or star is from the east or west points of the horizon, when rising or setting; and is either North or South.

Altitude is the number of degrees the sun or any star is above the horizon. And *Zenith Distance* is the altitude taken from 90 degrees; or it is the sun's or a star's distance, in degrees, from the zenith.

Azimuth, or vertical circles, pass through the zenith and nadir, and cut the horizon at right angles. *Azimuth* is the point of the compass the sun or stars bears on; or it is the number

number of degrees of the horizon the sun or star's vertical circle is from the meridian.

Almicanters are circles which run parallel to the horizon, whose poles are the Zenith and Nadir.

Latitude of a star is its distance, in degrees, from the ecliptic.

Longitude of a celestial object is its place in the ecliptic, reckoned according to the order of the signs.

The sun has longitude, but no latitude; for his apparent place is always on the ecliptic.

Problems to be solved by the Globes.

Problem I.

The Longitude and Latitude of a place being given, to find it upon the Terrestrial Globe.

Bring the degrees of longitude found on the equator to the meridian; then, under the degree of latitude, on the brass meridian, is the place required. Thus, suppose an American ship falls in with a French vessel in 36½ deg. north latitude, and 32 deg. longitude west from London; you will find it to be in the middle of the Atlantic ocean, a little south of the Azore isles.

Problem II.

To find the Latitude of any Place.

Bring the place to the graduated side of the brass meridian, and the figure that stands

over it shews its latitude or distance from the equator. Thus, the latitude of London is 51½ deg. north, Jerusalem is 32 deg. north and the Cape of Good Hope, 34½ deg. south.

Problem III.

To find the Longitude of any Place.

Bring the place to the brass meridian; then observe the degree the meridian cuts on the equator, and that is its longitude, or distance in degrees either eastward or westward, from the first meridian: which, in some globes, begins at Faro, in others at Teneriffe; but on the new ones, at London. Thus, the longitude of Mecca, in Arabia, is 43½ degrees east; and the longitude of Port Royal, in Jamaica, is 77 degrees west from London.

Problem IV.

To Rectify either Globe; i. e. *to place it in such a particular situation as is necessary for the solution of many of the following Problems.*

Having turned the graduated side of the meridian towards you, move it higher or lower till the pole stands as many degrees above the horizon, as the latitude of the place is you would rectify for. Thus, if the place be London, you must raise the pole 51½ degrees (because that it is the latitude of it) which brings that city to the top, or zenith, of the globe, and over the centre of the horizon;

izon; then turn the north pole of the instrument to the north part of the world, which may be done by means of a little compass, and the globe will present the natural situation of the earth itself.

Note, In all problems relating to north latitude, you must elevate the north pole; but in those that have south latitude, you must raise the south pole. The north pole must always incline to that part of the horizon marked December. We are to conceive ourselves on the surface of the terrestrial globe, but at the centre of the celestial, when we are solving problems.

Problem V.

To find the Sun's Place in the Ecliptic on a given day.

Look for the day of the month in the calender upon the horizon, and opposite to it you will find the sign and degree the sun is in that day. Thus, on the 25th of March, the sun's place is 4½ degrees in Aries. Then look for that sign and degree upon the ecliptic line marked on the globe, and there fix on a small patch. Then the globe will be prepared for the solution of the following problems.

Note, The earth's place is always in the sign and degree opposite the sun's: thus, when the sun is 4½ deg. in Aries, the earth is 4½ deg. in Libra; and so on of any other.

Problem

Problem VI.

To find the Sun's Declination, having his place in the Ecliptic given.

Bring his place to the edge of the meridian, observe what degree of the meridian lies over it, and that is his declination. Thus, on the 20th of April, the sun has 11 1-2 deg. north declination; but on the 20th of October he has 12 1-2 deg. south declination.

Problem VII.

To find where the Sun is Vertical at any given Time.

Having noted the sun's declination, bring the place at which the time is known to the meridian, and set the index to the given time, then turn the globe till the index points to XII at noon, and the place which stands under the point of the sun's declination on the meridian, has the sun that moment in the zenith.

All those places which pass under the point of declination when the globe turns on its axis, have the sun vertical on the given day. The sun is never vertical to any place out of the torrid zone.

Problem VIII.

To find on the Terrestrial Globe, at what Hour the Sun rises and sets, on any given day in the Year; and also upon what point of the Compass.

Rectify the globe for the latitude of the place you are in; bring the sun's place to the meridian, and set the index to XII; then turn the sun's place to the eastern edge of the horizon, and the index will point to the hour of rising; if you bring it to the western edge of the horizon, the index will shew the setting. Thus, on the 16th of March, at Philadelphia, the sun rises a little past six, and a little before six.

Note, In our hemisphere, in summer the sun rises and sets to the northward of the east and west points; but in winter to the southward of them. If therefore, when the sun's place is brought to the eastern and western edges of the horizon, you look on the inner circles, right against the little patch, you will see the point of the compass upon which the sun rises and sets that day.

Problem IX.

To find on the Terrestrial Globe, the length of the Day and Night at any given time of Year.

Only double the time of the sun's rising that day found as above, and it gives the length of the night: double the time of his setting

and it gives the length of the day. Thus, on the 26th of May, the sun rises in London about four, and sets about eight; therefore the day is 15 hours long, and the night 8.

Problem X.

To find the Length of the Longest or Shortest Day, at any place upon the Earth.

Rectify the globe for that place: bring the beginning of Cancer to the meridian; set the index to XII; then bring the same degree of Cancer to the east part of the horizon, and the index will shew the time of the sun's rising. If the same degree is brought to the western side, the index will shew the setting; and both being doubled (as in the last problem) will give the length of the longest day, or shortest night. If we bring the beginning of Capricorn to the meridian, and proceed in all respects as before, we shall have the length of the longest night and shortest day. Thus, at Petersburgh, the capital of Russia, the longest day is about 19 1-2 hours, and the shortest night 4 1-2 hours.

Note, This problem is reversed, if the place be in the southern hemisphere.

Problem XI.

To measure the distance from one Town to another.

Extend the Quadrant of Altitude from one place to another, that will shew the number of degrees;

degrees; which being multiplied by 60 (the number of geographical miles in a degree) gives the exact distance sought.

Problem XII.

To find all those Countries in which an Eclipse of the Moon will be visible.

Bring the place diametrically opposite to where the sun is vertical, (as found by Prob. VII.) at the time of the eclipse, to the top of the globe; and then the eclipse will be seen in all places above the horizon at that time.

Problem XIII.

To find those inhabitants of the Earth called Perioeci, *with respect to London.*

Bring London to the meridian, and set the index opposite XII; then turn the globe about till the index points to the other XII, and the part of the globe under 15 deg. 30 min. of the upper meridian, is that required.

Problem XIV.

To find those Inhabitants of the Earth called Antoeci.

These are found by counting equal degrees of latitude from the equator upon the meridian, on either side.

Problem

Problem XV.

To find the Antipodes *to any Place; for instance,* Philadelphia.

Bring Philadelphia to the upper or diurnal semicircle of the meridian; then in the nether semicircle of the meridian, reckon the same number of degrees southward upon the equator, as is equal to the north latitude of Philadelphia, viz. 40d. The point of the globe lying under this degree of the lower meridian is the place sought; which is in the Southern Ocean.

Problem XVI.

To find on what Day the Sun begins to shine without setting, in any given Place in the North Frigid Zone, and how long.

Rectify the globe to the latitude of the place, and turning it about, observe what points of the ecliptic, between Aries and Libra, cut the north point of the horizon; then find by the calender on the horizon, what day the sun will enter those degrees of the ecliptic, and they will satisfy the problem.

Problem XVII.

To find all those Inhabitants to whom the Sun is this moment rising or setting, in their Meridian or Midnight.

Find the sun's place in the ecliptic, and raise

raise the pole as much above the horizon as the sun that day declines from the equator; then bring the place where the sun is vertical (found by problem VII.) to the brass meridian; so it will then be in the zenith, or highest place of the globe. Now see what countries lie on the western edge of the horizon, for in them the sun is rising; to those under the upper part of the meridian it is noon day; and to those under the lower part of it, it is midnight.

Problem XVIII.

The time of Day at any Place being given, to find what o'Clock it is then in any other part of the World.

Bring the place at which the time is known to the meridian, and set the index to the time; then bring any other place to the meridian, and the index will shew the corresponding time there. Thus, when it is X in the morning at Philadelphia, we find it to be about III in the afternoon at London.

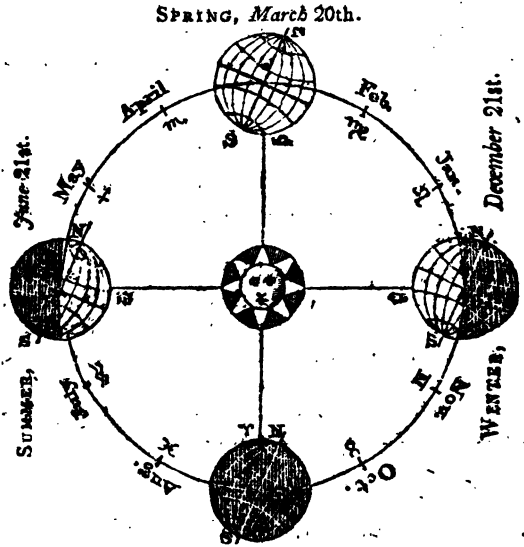
Problem XIX.

To find the Time of Day by the Sun's Altitude, &c.

The globe being rectified for the latitude, bring the sun's place to the meridian, set the index to noon, and screw the quadrant of altitude in the zenith; then move both globe and quadrant till the sun's place be found to coincide

cide with its altitude, and the index will point out the time required. Thus, on the first of May, at Philadelphia, when the sun's altitude is 38 degrees, we find it to be half past VIII in the morning or half past III in the afternoon.

SEASONS, WITH EXPLANATIONS.



This plate represents a view of the Earth in its annual course round the sun, its axis being inclined to the axis of its orbit 23 1-2 degrees. This contrivance, "sublimely simple," like all

all the Creator's works, is the cause of the difference of seasons; and the various length of days and nights.—In Spring, March 20th, the sun is over the Equator, the Earth is illuminated from pole to pole, and the days and nights are equal all over the globe—In Summer, June 21st, the north pole is turned to the sun; he is over the tropic of Cancer, our days are now at the longest; and the south pole is involved in darkness—In Autumn, September 21st, the sun is over the Equator again, opposite to spring, and the days and nights are equal over all the earth.—In Winter, December 21st, the sun is over the tropic of Capricorn and our days are at the shortest; the north pole in darkness, and the south pole turned to the sun, and their days are at their longest.

To explain the Equation of Time, or the difference between a true Sun Dial and a well regulated Clock.

The obliquity of the equator to the plane of the ecliptic, and the motion of the earth being slower in her aphelion than in her perehelion, are the reasons why a true sun dial, and a well regulated clock agree only on four days in a year. To shew this by a celestial globe, put black patches all round the equator and ecliptic, at equal distances, suppose 10 degrees, beginning at Aries. Then turn the globe on its axis, and you will see the marks on the ecliptic

tic from Aries to Cancer, come sooner to the brazen meridian, than the marks do on the equator;—from Cancer to Libra they come later; from Libra to Capricorn sooner; and from Capricorn to Aries later. But at the beginning of each of these quarters, the patches on the equator and the ecliptic come to the meridian at the same time.—The equation of time, for each day is marked in most of the common Almanacs; and time-pieces may be thereby regulated.

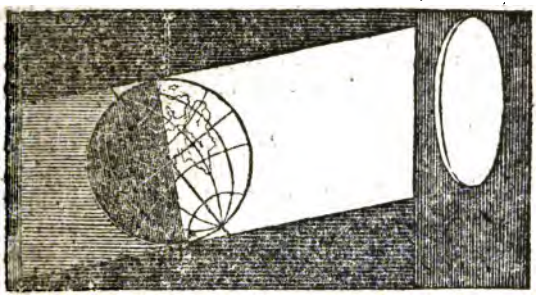
April sixteenth, and first of September,
Sixteenth June, and twenty-fifth December,
On these four days, and none else in the year,
The sun and the clock the same time declare.

The sun on the dial, is on all other days either faster or slower than the clock.

Experiments with the Globe in a Darkened Room.

Take the globe out of its horizon, and tie a string to the brass-meridian at the latitude of the place you are in: By this string hang it in the room where the sun may shine through a hole in the window-shutter freely upon it. Then direct the poles of the globe to their respective poles in the heavens; stay it fast with another string that it cannot go from this position. This being done, bring the place you are in to the edge of the meridian; so shall the globe be rectified, and will correspond in all respects with the earth itself, and that part of it you live upon.

The globe being thus suspended in a room made dark every where but at the hole through which



which the sun-beams enter, (as exhibited in the above Figure) you may pleasantly behold the following curious Phenomena, or appearances; which will give you a clearer idea of many conclusions in geography than any description whatever.

PHENOMENON I. You will see how this artificial earth, like the natural, will have one hemisphere illuminated by the sun, and the other involved in shade.—You will see, at that moment of time, where it is noon, and where it is night.—'Tis day in all the countries within the sunshine, and night in the nations behind, they being hid in obscurity and shade.

PHENOMENON II. If, in the middle of the enlightened hemisphere, you set up a pin perpendicularly, it will project no shadow, which shows that the sun is just in the zenith of that place; (that is) directly over the heads of the inhabitants there.——And, if many pins be stuck up in different parts of the globe, they will cast their shadows exactly the same way

as the various inhabitants of those places do. Some you will see pointing towards the north, some to the south; some stretching eastward, others westward; and some projecting no shadow at all.

PHENOMENON III. If you draw a meridian line, with a pencil, from one pole to the other, through the middle of the illuminated hemisphere; then in all places under that line it is noon; in those places situate to the west side, it is morning, for with them the sun is seen ascending to the east; and in those places situate on the east side, it is evening, for with them, the sun is seen descending to the west.

PHENOMENON IV. The globe still remaining in the same position, you may see on the east side in what nations the sun is stealing away, and drawing the dusky curtain of night after it; and on the western side of the globe, you may observe the sun creeping upon it, driving the darkness before him, and blessing the benighted inhabitants with the glories of the coming day.

PHENOMENON V. So many degrees as the light spreads beyond either the north or south pole, just so many degrees is the declination of the sun either northward or southward at that time; and in all those places comprehended in a circle described at the termination of the sunshine about the pole, it is continual day till the sun decreases in its declination; for the sun goes not below their horizon, as you may easily perceive, by turning the globe

for

gently upon its axis: and at the opposite pole, to the same distance round it, it will continue to be night (the sun not reaching thither) till it decreases in his declination.

PHENOMENON VI. The globe remaining in the same situation till the evening; you may, if the moon shines, see what nations are illuminated by the moon at that time, and where she is rising and setting.

PHENOMENON VII. If a narrow slip of paper be round the equator, and divided into 24 equal parts, beginning at the meridian of your place, and the hours be set to those divisions in such a manner that one of the 6's may be upon your meridian, the sun being upon that meridian at noon will shine upon the two 12's, and at one, upon the two 1's. So that the place where the enlightened part of the globe is parted from the shaded half, in this circle of hours, will shew the time of the day.

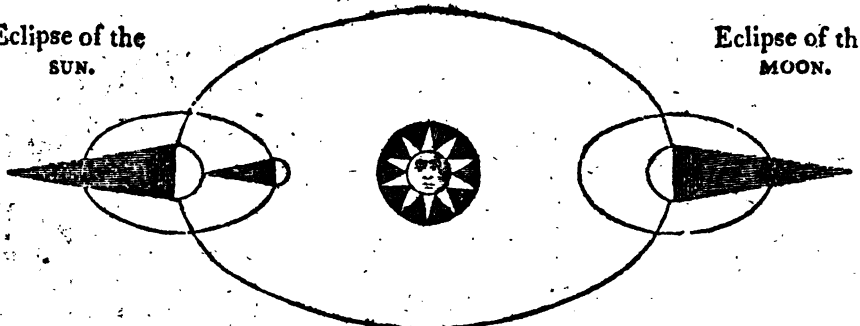
Another Experiment.

Place the globe on a pedestal, in sun shine, with its poles towards the poles of the heavens, and the meridian of the place where you are, directly towards the south; then you will see all the places where the sun shines, on the earth; where it is night; and where he is rising or setting. By walking round the globe you may also see the phases of the moon.

Place the globe in the same manner, in the moon-shine, and you will in like manner, see the extent of moon-light on the real earth.

REPRESENTATION

REPRESENTATION OF ECLIPSES.



An Eclipse of the moon is caused by the earth's coming betwixt her and the Sun ; and an eclipse of the Sun by the moon's coming betwixt him and the earth. The Sun is eclipsed at the new moon ; and the moon is eclipsed when she is full. It is only a small part of the earth that can be covered by the moon's shadow : but the moon may be totally eclipsed by the earth. The obliquity of the moon's orbit on the plane of the ecliptic, is the reason why there are not eclipses at every new and full moon The moon's orbit intersects the ecliptic at two opposite points called her Nodes. When these points are in a right line with the centre of the sun at new or full moon, the sun, moon, and earth are all in a right

line; and if the moon be then new, her shadow falls on the earth; If full, the earth's shadow falls upon her: and according to the moon's nearness to her nodes at new or full moon, the eclipse is more or less total. But if the sun and moon are more than 17 degrees from either of her nodes at new moon, or the sun more than 12 degrees at full moon, no eclipse can happen; for the shadow of the moon will pass by the earth, or the shadow of the earth pass by the moon.

Of the Stars.

We shall now give two or three Problems on the celestial Globe, in which the stars are concerned; which, with respect to the present age, we may very well consider as fixed, since their motion is so exceedingly slow, as not to be sensible in less than half a century: And as their places are carefully rectified on the globe, and we intend not here a philosophical discourse on the stars, we shall only observe, that they are ranged into various constellations on the surface of the celestial globe, as artificial helps for directing us how to know, and where to find them in the heavens. The names of these constellations are to be learnt by inspection of the globe, as also their forms and dispositions. You will find the stars depicted in different degrees of magnitude, as they appear to the eye, the largest being called stars of the first magnitude; and upon the globe you will see them decreased to the 6th or 7th magnitude. When you are to perform any problem of the stars, it is supposed you have rectified the globe, as in all other problems, and then the process will be easy.

A TABLE

OF THE RIGHT ASCENSION AND DECLINATION OF SOME OF THE PRINCIPAL FIXED STARS.

Principal Stars.	Right Ascension	Declination.
Aldebaran, or Bull's Eye,	66° 3′	16° 6′ N.
Algol, in Medusa, - - - - -	43 45	40 10 N.
Alioth, in Ursa Major, - -	191 16	57 4 N.
Arcturus, Bootes, - - - - -	211 36	20 16 N.
Antaras, or Cor ♏ - - - -	244 14	25 58 S.
Betelguese, in Orion, - - -	86 2	7 21 N.
Capella, or Goat Star, - -	75 25	45 46 N.
Dubhe, or Upper Pointer, -	162 45	62 51 N.
Fomalhaut in S. Fish, - - -	341 35	30 42 S.
Lyra, or Vega, - - - - - -	277 30	38 36 N.
Pleiades or 7 Stars, - - - -	53 51	23 28 N.
Procyon, or Little Dog, - -	122 10	6 45 N.
Regulus, or Cor ♌ - - - -	149 23	12 48 N.
Rigel in Orion, - - - - - -	76 11	8 27 S.
Sirius, or Great Dog, - - -	99 3	16 26 S.
Virgin's Spike, or Spica ♍	198 37	10 8 N.

Problem XX.

The right Ascension and Declination of a Star being given, to find its place on the Celestial Globe.

Turn the globe till the meridian cuts the equator in the given degree of right ascension, and under the meridian in the given degree of declination, you will find the star.

Problem

Problem XXI.

To find, on the Celestial Globe, the Right Ascension and Declination of any given Star.

Bring the given star to the meridian, and the degree under which it lies, is its declination; and the point in which the meridian intersects the equator, is its right ascension. For instance, let Arcturus be the given star, this brought to the meridian, will be seen under the 20 deg. 16 min.; which is therefore, its declination north: and its right ascension is, at the same time, shewn in the equator to be 211d. 36m.

Problem XXII.

To find, on the Celestial Globe, the Latitude and Longitude of a given Star.

Bring the pole of the ecliptic to the meridian, over which fix the quadrant of altitude, and holding the globe very steady, move the quadrant to lie over the given star, and it will cut that degree in its edge, which will shew the latitude from the ecliptic; and in the ecliptic the quadrant will cut that degree which is called its place reduced to the ecliptic, or longitude from the beginning of Aries. Thus with respect to Arcturus, its latitude from the ecliptic will be found 30d. 30m.; and its longitude in the ecliptic about 20d. 20m. in Libra.—This problem regards either pole, as the stars are in the northern or southern hemispheres respectively.

Problem

PROBLEM XXIII.

To represent the Face of the Heavens, on the Globe, for a given Hour, on any Day of the Year.

Rectify the globe to the given latitude of the place, and day of the month, setting it due north and south by the needle; then turn the globe on its axis till the index points to the given hour of the night. Then all the upper hemisphere of the globe will represent the visible face of the heavens for that time; by which it will easily be seen what constellations, and stars of note, are then above our horizon, and what position they have with respect to the points of the compass.

PROBLEM XXIV.

To find the Altitude and Azimuth of the Sun or a Star, for any given Time or Place.

Rectify the globe to the latitude; bring the sun's place to the meridian, and set the index to noon; screw the quadrant in the zenith, and turn the globe till the index points to the given time; the quadrant then set to the place of the sun, or stars, will shew its altitude, and will cut the horizon in its azimuth. Thus, at Philadelphia, on the first of May, at half past VIII in the morning, we find the sun's altitude about 31 degrees, and its azimuth S. 78 E.

PROBLEM

Problem XXV.

To find the Rising and Setting or Culminating of a Fixed Star.

Rectify the globe to the latitude; bring the sun's place to the meridian, and set the index to noon; then turn the globe till the star be brought to its intended position, and the index will shew the time. Thus, Arcturus is found to rise at Philadelphia, on the 11th January, at a quarter past XI. P. M.

Problem XXVI.

To exhibit divers Phenomena of the Moon and Planets.

Although the place of the moon and planets, by reason of their being variable, are not marked on the globe, yet their rising, setting, southing, altitude, azimuth, &c. may be pleasingly determined, for any time or place, just in the same manner as those of the fixed stars, after having previously found their place in an almanac, and noted them on or near the ecliptic, on the globe, by little patches marked with their respective characters. Thus, we find that Jupiter (♃) passes the meridian on the 15th of October, 1809, at 11h. 53m. Other examples to this problem may be taken from the almanac.

Note. When accuracy is required in working for the moon, it will be necessary, after finding the time of her rising, &c. to estimate her place to this time from the noon place in the almanac, and to note her latitude, and then repeat the problem.

Of

Of the different Positions of the Sphere or Globe.

By the revolution of the earth on its axis, the sun, moon and stars, seem to a spectator, on the equator, to rise perpendicular, or at right angles to the horizon; but obliquely, or slant-wise to one at Philadelphia, or any place more or less distant from the equator, except at the two poles, where they seem to move parallel to the horizon: And hence there are said to be three positions of the sphere, viz. a *right*, *oblique* and *parallel*. The *right sphere* belongs to one on the equator; and the *oblique* to one in either hemisphere, except at the poles, where it is a *parallel* sphere. By rectifying the globe for the equator, the pole, or any intermediate place, and turning it round, a clear illustration of the three positions of the sphere is easily exhibited.

SECTION IV.

Of the different Religions, Governments, Languages and Letters, Civilization, and Commerce of Nations, with an outline of Universal History.

I. *Of* RELIGION.

IT would be inconsistent with our plan to enter into tedious or learned disquisitions on Religion; all that is proposed is to instruct the learner in such general manner of fact, respecting religion, as may improve his mind, and

and facilitate his progress in the study of geography. The term Religion has a variety of significations: For instance, it may signify piety, devotion, godliness, holiness, virtue, &c.; or the worship rendered to the Supreme Being in the manner most agreeable to his will; or any other kind of worship rendered to him, or to false deities: or it may signify a certain number of principles or tenets, either true or false, adopted by a body of men, as a system to direct their faith or practice; in which sense chiefly, we are about to use it here. Religion, therefore, considered in this point of view, has great influence on the conduct of men; and consequently, its purity is of the last importance. It is highly worth our attention as individuals in this life: for, when it is pure, it soothes our sorrows, refines our joys, sheds its heavenly influence on our souls; and lays the foundation of our happiness in the world to come. It is of great advantage to states, as it inspires honesty in every one, integrity in the legislators and magistrates, fidelity in citizens, good faith in commerce, and an upright discharge of all the duties of civil or social life.

The religions most prevalent, at present, are, Christianity, Judaism, Mahometanism, and Paganism. All these have establishments in different countries, as will be seen in the next section, except Judaism, which is not now the established religion of any country; yet its professors are to be met with in the most parts of the world.

JESUS

JESUS CHRIST (whom we believe to be the Son of God, and the Saviour of mankind) is the Author and founder of the *Christian* religion. The particulars of his nativity, life, &c. are recorded in the writings of the Evangelists, to which we refer. Christianity implies a true belief in Christ and his doctrine, as set forth in the scriptures of the Old and New Testament; and a constant preseverance in all good works, by following his example in the practice of benevolence, charity, chastity, friendship, fortitude, honesty, hospitality, justice, mercy, prudence, temperance, and all other Christian virtues and graces.

The Christians are divided into three general denominations; namely, Roman Catholics, Greeks, and Protestants.—The Roman Catholic and Greek churches nearly agree in religious tenets. Their difference originated in the disputes between the bishop of Rome and Constantinople, about supremacy, or universal patriarchal power, and on some doctrinal points; which after subsisting a long time, finally terminated, in the ninth century, in a schism or separation.—*Roman Catholics* are those who own the supremacy of the bishop or pope of Rome; and the *Greeks* those who joined the bishop of Constantinople, and denied the pope's supremacy.——The *Protestants* agree with the Roman Catholics and Greeks respecting good works, but differ from them in matters of faith. About the beginning of the sixteenth century, Luther, Calvin, and other eminent

eminent men, asserted that the church had lost its original purity, and become corrupt; and soon after denied the authority of the pope, and began a reformation in the church: and hence were called Reformers. The name Protestant took its rise from the reformed princes and the deputies of fourteen imperial cities *protesting* against a decree in favour of the church of Rome, at the diet of Spires, in Germany, 1529. Luther and Calvin did not altogether agree in their opinions, especially concerning church government: the one admitting *episcopacy*, that is, the government of the church by *bishops*: the other *presbyterianism*, that is, by *presbyters*, or *elders*: Hence the appellations of Lutherians and Calvinists, or Episcopalians and Presbyterians. There are a variety of other sects among the Protestants; such as, Independents, Quakers, Anabaptists or Baptists, Arminians, Methodists, &c.

Judaism is the religion of the Jews. Its tenets are contained in the scriptures of the Old Testament, particularly in the Pentateuch, or five books of Moses. As the Jews do not believe in Jesus Christ, but expect that the Messiah is yet to come, therefore they refuse to acknowledge the authority of the New Testament.

Mahometanism commenced about the beginning of the 7th century. It was founded by Mahomet; who was born at Mecca in Arabia, in the year 571. It is a mixture of the Christian, Jewish, and Pagan religions: the principles

whereof are contained in a book called the Alcoran or Koran. Mahomet pretended to be a prophet ſent from God: and propagated his religion by fire and ſword. He allows a plurality of wives, forbids wine, and promiſes his followers the greateſt ſenſual delights in paradiſe.—Ali and Omar, two of the followers of Mahomet, differed in expounding the Koran; and therefore divided the Mahometans into two ſects or orders, called, after themſelves, the orders of Ali and Omar.

Paganiſm is the religion of the people unacquainted with the *true God*, "who made the "world, and all things therein; and in whom "we live, move, and have our being." Idolatry began very ſoon after the flood. At firſt it conſiſted in worſhipping the ſun, moon, and planets, as it was ſuppoſed they had influence on the affairs of this world. It was ſome hundred years before images were made; which originally repreſented the anceſtors of a family. Theſe were houſehold gods, of which we read in Laban's family, Gen. chap. 31. As men loſt the knowledge of the true God, idols were greatly multiplied, and made in the moſt ridiculous ſhapes, as Janus with two faces; Pan, with the feet of a goat; Dagon, with the upper part of a man, and the tail of a fiſh. In India, they have idols with ſix heads, twelve arms, and of the moſt hideous countenance. Some of the Deities are male, as Jupiter, Baal; others female, as Juno, Aſhtaroth. Founders of empires, and heads of families were deified, as

Noah,

Noah, Shem, Ham, Nimrod, and worſhipped under various names by their deſcendants or ſubjects, as Saturn, Jupiter, Neptune, Baal. Great men, and inventors of uſeful arts, were worſhipped after their death, as Auguſtus the emperor, Eſculapius, the phyſician. At length virtues and vices were deified; as faith, hope, envy, fraud. Brute animals have been held ſacred, as the ox, dog, and crocodile in Egypt, the cow in India; and every deity among the Greeks and Romans was ſuppoſed to have a ſacred animal, as Jupiter the eagle, Juno the peacock, Minerva the owl.

The idols of various nations ſeem to have been the ſame, under different names and figures. In India the Sun is worſhipped by the name of Surya, in Egypt called Oſiris, in Greece and Rome, Phœbus. The native Mexicans worſhipped the Sun.—The Magi in Perſia, adored the Sun only by fire, as his true emblem, and the ſacred fire they kept continually burning. To theſe idols, temples were raiſed and altars dedicated: and the worſhip paid to them was often of a cruel and abominable kind. Human ſacrifices were offered in many places, and female deities were worſhipped by the moſt indecent and laſcivious practices. And the hiſtories of their gods are as wicked as their worſhippers or worſhip.

No people retained the knowledge of the true God, but the Jews. Several other nations made greater progreſs in arts and ſciences, yet their conceptions of the Divine Being, and the way

of

of worshipping him, became more gross as they advanced in civilization. So that in Greece and Rome thirty thousand deities have been reckoned up. The world by wisdom, knew not God. Hence we may see the necessity of Divine revelation. The true God was declared by Jesus Christ. By his apostles the light of the gospel was spread abroad with wonderful rapidity and success; and the ancient system of idolatry was in most places overturned.—But though many countries, once enlightened, lost the purity of the gospel; yet none that ever embraced it, resumed the old system of Paganism, or idol-worship.

II. *Of* GOVERNMENT.

The object of government is, or ought to be, the protection of the *persons*, *properties*, *rights*, and *privileges* of the people, individually and collectively. Government is generally divided into three branches, or departments, viz. the *legislative*, *executive*, and *judicial*. The laws are made by the legislative branch: thus, the Parliament of England, the Congress of America, and the several State Legislatures, are vested with, and exercise this power. The business of the executive branch is to carry the laws into effect, by enforcing obedience to them, or inflicting penalties and punishments on transgressors: thus the King of Great Britain, the President of the

the United States, and State Governors are veſted with, and exerciſe this power. The judicial department has to interpret the laws, to judge of and determine controverſies between man and man, and to condemn, or pronounce ſentence of puniſhment on offenders: this power is veſted in, and exerciſed by Juries and Judges, or Courts of Juſtice.

There are four forms of national governments, viz. *monarchial, ariſtocratical, democratical*, and *mixed*. Monarchial government, is when the ſupreme authority is in the hands of one perſon, called the Monarch, or Sovereign, who is ſtiled an *Emperor, King, Prince, Duke*, &c. Some monarchs are *deſpotic*, that is, act as they pleaſe, being abſolute maſters of the lives and fortunes of their ſubjects, and having no rule for their conduct but their will: others are *limitted*, having their power ſtrictly defined and reſtrained by the laws. In an ariſtocratical government, the nobles or great men have uſurped the ſupreme authority, without the ſuffrages of the people; and if their number be ſmall, it is termed an *Oligarchy*. In a democratical gernment, the people have the ſovereign authority in their hands; from whence it is delegated to their repreſentatives in Aſſembly, Parliament, Congreſs, &c. A mixed government is, when theſe three forms, or any two of them, are mixed or blended together; as in Great Britain, where the government is a compound of monarchy, ariſtocracy, and democracy.—The country where the democratical form of government is eſtabliſh-

ed, is called a State, Republic or Commonwealth. An ariſtocracy is alſo called a Republic. Of monarchies, ſome are *abſolute*, others *limitted*, as was mentioned before: ſome are *hereditary*, as Great Britain, others *elective*, as Germany.

Government at firſt was Patriarchal. The father of the family exerciſed authority over his deſcendants. Monarchy was firſt introduced by Nimrod. He laid the foundation of the Chaldean empire the ſecond century after the flood. The firſt republic we read of was in Greece, 1100 years before Chriſt; Carthage afterwards became a powerful and commercial republic; The Roman republic continued a long time in ſplendor. Several others have been eſtabliſhed, as in Holland, Switzerland. But the only true republics, founded on rational principles, are thoſe of the United States of America; where civil and religious liberty are enjoyed in greater perfection than ever they were in any other nation.

III. *Of* LANGUAGES *and* LETTERS.

By language we communicate the ideas or thoughts in our minds one to another.

It is univerſally allowed, that there was but one language from Adam to the flood. This original language is by many ſuppoſed to be the Hebrew; which hath great energy and ſublimity. The writings in this language, except the old Teſtament, are loſt. It continued to be ſpoken by Noah and his ſons till the building of Babel:

Babel: and then was continued in the line of Eber, the progenitor of the Hebrews or Jews. At the diſperſion, or the confuſion of tongues, the three families of Noah's ſons ſeparated into different countries, and three general languages ſeem to have been formed. 1. The ancient Perſian; which was the mother of the Eaſt Indian, the Egyptian, modern Perſian, Greek, Latin, and Gothic. 2. The Arabic, of which the Ethiopian, Chaldaic, Aſſyrian, and Syrian are dialects; and which have an affinity with the Hebrew. 3. The Tartar language, which ſpread in various dialects over the north of Europe and Aſia.

The old Perſian and Arabic, and their branches, are ſaid to be of wonderful ſtructure, copiouſneſs, and energy. The Tartar language never ſeems to have been cultivated, except the Turkiſh dialect, after that people got poſſeſſion of Conſtantinople.

The Chineſe language is ſuppoſed by ſome to be a mixture of the Indian and Tartar languages. But it is difficult to attain any competent knowledge of it, both on account of its intricacy, and the jealouſy of the people.

As it is probable the North American Indians came originally from Tartary, their language, if it could be traced, may have an affinity to ſome of the dialects ſpoken in that country—The Mexicans and Peruvians, ſome ſuppoſe, came from eaſtern iſlands of Aſia, and have a reſemblance of theſe people.

By continued emigrations, as well as by wars, invaſions,

invaſions, and want of mutual intercourſe, the firſt languages were loſt or corrupted, and ſpeech in many places became barbarous, and the people barbarians—Afterwards the Greek and Latin became copious and refined languages, but by the overturning of the Roman empire they alſo were corrupted and changed: and from them, together with the old Gothic, the various modern languages of Europe have ariſen. The Engliſh, French, and German are now the moſt general; the Engliſh language however ſeems to be moſt extenſive, as it is ſpoken not only in Britain, but through the whole continent of North America, ſeveral parts of the Eaſt and Weſt Indies; and other ſettlements—Hence it deſerves to be carefully improved and preſerved, not only as it is ſpoken ſo univerſally, but as much of the learning of the ancient and modern world may be attained by its means.

Of Alphabetical Letters and Writing.

Writing is the art of conveying our ideas by letters, or characters viſible to the eye. Learned men have ſuppoſed, that the Alphabet, on account of its ſimplicity and uſefulneſs, is of divine origin, firſt communicated by God. It is certain, that written alphabetic language was firſt in uſe among the Hebrews, and thoſe nations who were in their neighbourhood, as the Phenicians, Chaldeans, &c. whoſe languages are only a dialect of the Hebrew. The five books of Moſes, and the book of Job, are not only the moſt

most ancient conpositions; but the most early specimens of alphabetic writing at present in the world.

IV. *Of Civilization and Commerce.*

Some have supposed that mankind were originally in a barbarous state, and that in progress of time they became civilized. But the truth is, that man was created perfect: His language and knowledge were imparted by God. Hence we find him, immediately after his creation, naming the beasts according to their different natures. Though man soon lost his moral rectitude, he retained much of his natural knowledge; for we find the first men practising arts and manufactures, Genesis, chap. iv. 20, 21, 22, and religion publicly professed, ver. 26, and Enoch the seventh from Adam prophecied of the last judgment. Noah, no doubt, acquired all the learning of the old world, and his sons must have had considerable experience; as they were about an hundred years old at the flood. Accordingly, soon after this event we find Noah engaged in agriculture, and his posterity building the magnificent tower of Babel, the cities of Babylon and Nineveh, and founding the empires of Assyria, Egypt, and India. Job and his friends, who lived in Arabia before the time of Moses, appears, by the book bearing his name, to have been acquainted with agriculture, astronomy, mineralogy, civil government, and true religion. Commerce was early carried on. In the time of Jacob we read of a company

company of Ishmaelites trading to Egypt, and of coined silver being then in use as a medium of trade. And long before, in the time of Abraham, private property was understood, and particular modes established for conveying real estates; as is evident from his purchasing the field of Machpelah. Gen. chap. 27.

Great part of mankind, however, soon became barbarous. This was owing to their removing from the seat of their ancestors, settling in interior parts, and in small independent tribes; their frequent wars, and losing their connection, intercourse, and trade with the civilized part of mankind.

The sciences were, after the flood, first cultivated in Chaldea, from whence they were carried to China, India and Egypt, and from Egypt they were brought to Greece, and afterwards to Rome. The Romans, along with their arms, carried the arts through great part of the world. But by the interruption of the Goths and Vandals, the arts were lost, and Europe again sunk into barbarity—In Constantinople alone they were preserved, and after several centuries, they began again to revive in Italy; and spread gradually to other nations. The arts and sciences, in general, are now carried to higher perfection in Europe, than ever they were in any other part or age of the world.

The first people that applied themselves to navigation, were those who dwelt round the Mediterranean sea. The cities of Tyre and Sidon were early famous for commerce—Alexandria in

in Egypt, was for many ages the ſtore for India goods—Carthage carried on trade to many parts of Aſia and Europe. When the Romans conquered great part of the world, commerce flouriſhed under their protection—But it was nearly annihilated in Europe, when the northern barbarians overturned their empire. After ſeveral centuries the ſpirit of trade revived, and navigation was greatly facilitated by the diſcovery of the magnet, and the conſtruction of the compaſs. Mariners now ventured boldly into the ocean, inſtead of creeping, as formerly along the ſhore; the Portugueſe, after repeated attempts, found the way to India by the Cape of Good Hope; and Columbus diſcovered America—Portugal and Spain were then the moſt commercial nations; but they ſoon experienced rivals in the Dutch, French and Engliſh. This laſt nation has now the greateſt trade of any in the world; having rich colonies in the eaſt and in the weſt. The United States are faſt advancing in their commercial career, and in the greatneſs of their trade are ſecond only to Britain.

The eaſtern nations of India and China, have always applied themſelves to the coaſting trade and inland navigation, for which theſe countries are well ſituated, by their gulphs, bays, and rivers. Perhaps this is one reaſon why theſe nations never ſunk into barbarity; and that arts and ſciences made progreſs among them—while the northern parts of Aſia, and moſt part of Africa were always in the ſame barbarous ſtate we find them at preſent. Stranger and enemy

are

are with them words of the ſame meaning. Commerce is the bond which unites the moſt diſtant nations; it awakens curioſity, enlarges the ideas and deſires of men, incites them to bold enterpriſe: ſtirs up the ingenuity and induſtry of the farmer and mechanic; and is a great mean of civilizing and improving the condition of the human race.

V. *Outline of Univerſal Hiſtory.*

The Creation of the world was about four thouſand years before Chriſt. The only account of men from the creation to the flood is in the firſt chapters of the Bible. No doubt but before that event the world was become very populous, as the lives of men reached near a thouſand years. But mankind in general became very corrupt. The long lives of the antedeluvians enabled them to continue and increaſe in wickedneſs; and the earth was filled violence. To puniſh a guilty world, God deſtroyed the whole human race by a flood, except Noah and his family, who were ſaved in an ark. This event took place in the 1656th year of the world.

Noah's ſons were Shem, Ham and Japheth; who became the fathers of the human race. Noah and his family after the flood, eſtabliſhed themſelves in Iran, or Perſia, in the northern parts of which the ark reſted on mount Ararat. As they multiplied, they divided into three different branches. Japhet was enlarged in many ſcattered ſhoots over the north of

Europe

Europe and Asia, diffusing themselves, as far as the eastern and western seas; and at length in the infancy of navigation, beyond them both; perhaps to North America. They cultivated no liberal arts, and had no use of letters, but formed a variety of dialects, as their tribes were variously ramified. The children of Ham, founded in Iran, or Persia, the first monarchy of the Chaldeans, observed and named the luminaries of the firmament, and contrived the old system of mythology, partly allegorical, and partly founded upon idolatrous veneration for lawgivers and sages: they were dispersed at various intervals in various colonies over land and ocean; some settled in Africa and India; while others of them having improved the art of sailing, passed from Egypt, Phenice, and Phrygia, into Italy and Greece, which they found thinly peopled by some former emigrants, of whom they supplanted some tribes, and united themselves with others: while a swarm from the same hive, moved by a northerly course into Scandinavia, and another as far as the territories of China, where letters have been used and arts cultivated time immemorial; nor is it unreasonable to believe, that some of them found their way from the eastern isles, into Mexico and Peru, where traces were discovered of rude literature and mythology, analogous to those of Egypt and India. The old Chaldean empire being overthrown by the Assyrians, or the descendants of Shem, other emigrations took place, especially into India, while the rest of Shem's

progeny, ſome of whom had before ſettled on the Red Sea, peopled the whole of the Arabian peninſula, preſſing cloſe on the nations of Syria and Phenicia. From all theſe three families were detached many bold adventurers of an ardent ſpirit and roving diſpoſition, who diſdained ſubordination, wandered in ſeparate clans, till they ſettled in diſtant iſles, deſerts, or mountainous regions; where they corrupted their language, loſt the arts, and became ferocious and uncivilized. We have no hiſtory unmixed with fable, till about five or ſix hundred years before the Chriſtian era, except that of the turbulent and variable, but eminently diſtinguiſhed nation deſcended from Abraham, now called the Jews.

We can ſcarce gratify our minds with a more uſeful and rational entertainment, than the contemplation of thoſe wonderful revolutions in kingdoms and ſtates which have happened within little more than 4000 years. Figure to your imaginations a moving picture of that eventful ſcene, or rather a ſucceſſion of crowded ſcenes, rapidly changing. Three families migrate in different courſes from one region, and in about four centuries eſtabliſh very diſtant governments, and various modes of ſociety. Egyptians, Indians, Goths, Phenicians, Celts, Greeks, Latins, Chineſe, Peruvians, Mexicans, all ſprung from the ſame immediate ſtem, appear to ſtart nearly at one time, and occupied at length all thoſe countries to which they have given, or from which they have derived their names. In

fourteen

fourteen hundred years more, the Greeks overrun Perſia, the land of their forefathers, invade India, conquer Egypt, and aim at univerſal dominion: afterwards the Romans appropriate to themſelves the whole empire of Greece, and carry their arms into Britain, of which they ſpeak with contempt. The Goths, or northern barbarians, in the fulneſs of time, break to pieces the unwieldly coloſſus of Roman power, and ſeize on the whole of Britain, except its wild mountains: but even theſe wilds became ſubject to the invaders of this Gothic lineage. During all theſe tranſactions, the Arabs, under the ſucceſſors of Mahomet, poſſeſs themſelves of the coaſt of the Red Sea, ſubdue Perſia, the firſt ſeat of their old progenitors, and extend their conqueſt on the one ſide through Africa, into Europe itſelf: on the other beyond the border of India; part of which they annex to their flouriſhing empire. In the ſame interval the Tartars, widely diffuſed over the reſt of the globe, ſwarm in the north eaſt; whence they ruſh to complete the reduction of Conſtantinople, or the eaſtern Roman empire; to ſubjugate China, to raiſe in the Indian realms a dynaſty ſplendid and powerful; and ravage, like the two other families, the devoted regions of Perſia. By this time the Mexicans and Peruvians, with many races of adventurers, variouſly intermixed, have peopled the continent and iſles of America; which the Spaniards diſcover, and in part overcome: while a colony from Britain obtain poſſeſſion of extenſive Ameri-

can

rican districts: and other British subjects, acquire a subordinate empire in the fairest provinces of India. And finally, the descendants of Britain in America, establish an independent and powerful empire.

This is the outline of human transactions, which our pupils as they advance in years, and have opportunity, will fill up by perusing the best authors. They will observe in the course of their reading, the necessity of liberty, government, and religion, to make individuals or a nation happy; and they will see the evils resulting from despotism, anarchy, vice, and irreligion. Their minds will thereby be stored with principles and facts, to regulate their conduct, and make themselves useful and respectable in the world.

SECTION V.

Of the Political Divisions of the Earth.

We now proceed to give a brief description of the earth in respect to its political divisions into empires, kingdoms, states, &c.

The world is divided into four parts, viz. Europe, Asia, Africa, and America. The three first parts are sometimes called the Old World, because long known; and America, the New World, because lately discovered.

AMERICA.

Discovery.

Christopher Columbus, a native of Genoa, in the service of Spain, was the first who discover-

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ed America. In the year 1492, he sailed with a fleet of three ships. After a voyage of thirty-three days he landed on one of those islands, now called the Bahamas. He afterwards touched at several other islands, trading with the natives for gold, which was the only object of commerce he thought worthy his attention. In steering southward, he met with the island Hispaniola. On his return home, he discovered the Carribee islands. He was received in Spain with the greatest applause, and the highest marks of respect. He afterwards sailed on other discoveries to America: but the ungrateful Spaniards at last suffered him to die neglected and disregarded. The court however, buried him magnificently in the cathedral of Seville; and erected a tomb over him with this inscription, "Columbus has given a new world to the kingdoms of Castile and Leon." The wealth which Columbus brought into Europe, tempted many others to make equipments at their own expense. In one of these expeditions Americus Vespusius, a merchant of Florence, sailed to the south continent of America. He wrote a history of his voyage; and by being a man of address, had the honor of giving his name to half the globe.

Boundaries.

The continent of America, is bounded, north, by parts unknown; south by the Southern Ocean; east, by the Atlantic Ocean; and west, by the Pacific Ocean. Its length is nearly 8000 miles, and its greatest breadth 3000.

General Divisions.

It conſiſts of two large peninſulas, divided by a narrow neck of land about 60 miles over, called the Iſthmus of Darien, or Panama. One is called North America, and the other South America.

NORTH AMERICA.

DESCRIPTION.

North America is almoſt 5000 miles in length, from north to ſouth, and from 3000 to 1000 miles in breadth.

In the northern parts of America are ſeveral vaſt *Lakes*, or rather inland ſeas, which communicate with each other, and are of ſufficient depth for the navigation of large ſhips.—The north-weſternmoſt is the Lake of the Woods, 70 miles long and 40 broad. Lake Superior is 1500 miles in circumference, and is ſuppoſed to be the largeſt body of freſh water on the globe; about 40 rivers empty into it, and there are ſeveral iſlands in it, whereof two are very large. Lake Huron is in circumference about 1000 miles. St. Clair is a ſmall lake between Huron and Erie. Lake Erie is 300 miles long, and 40 broad. Lake Ontario is next; its circumference is about 600 miles. Lake Michigan is alſo 600 miles in circumference, and communicates with, and lies to the ſouth weſt of Lake Huron.

Lake Champlain is about 80 miles long, and 14 broad. Lake George and Oneida are but ſmall in compariſon of the others. Theſe laſt are in the ſtate of New York. The


NORTH AMERICA
THE ARCTIC CONTINENT
Baffins Bay
Greenland
Arctic
Circle
C. Farewell
Hudsons Bay
NORTH SEA
Newfound Land
The Lakes
Oregon R.
MEXICO or NEW SPAIN
LOUISIANA
Missisipi R.
Ohio R.
UNITED STATES
SCOTIA
ATLANTIC OCEAN
Bermudas Is.
California
Florida
GULF OF MEXICO
Tropic of Cancer
WEST INDIES
Jamaica
THE SOUTH SEA
Pt. OF SOUTH AMERICA
Trinidad
110 Long. 100 West 90 from 80 London 70 60

m the ſtate of New York. The

The principal RIVERS in North America, are, the Oregon, or river of the weſt, which runs a weſterly courſe into the Pacific Ocean: the Bourbon, which runs a northerly courſe, and empties into Hudſon's Bay; the St. Laurence, which runs eaſterly, and falls into the Atlantic: and the Miſſiſſippi, which falls into the Gulf of Mexico. Theſe rivers are ſuppoſed to riſe near the Lakes, and they run different courſes, each above 2000 miles, which ſhews that theſe parts are the higheſt lands in North America. The Miſſiſſippi has a ſouthern courſe of 3000 miles; receives the Miſſouri, Red river and others from the weſt, and the Illinois and Ohio from eaſt. The Ohio is 1109 miles long, and receives the Wabaſh, the Miami, the Sciota, the Kingum, &c. from the weſt; and the Tenneſſee, Cumberland, Kentucky, Kanawa, and other rivers from the eaſt. The principal rivers which fall into the Atlantic ocean will be afterwards mentioned.

Between the Atlantic and the Miſſiſſippi are ſeveral vaſt ridges of MOUNTAINS, which run parallel to the ſea coaſt. They extend from the Northern lakes to Georgia, nearly 1000 miles in length; and of various breadths, from 60 to 200 miles. The principal ridge is called the Apallachian, or Alleghany mountains.

CURIOSITIES.

Theſe are daily diſcovered; we can only mention a few.

Falls.] Between the lakes Ontario and Erie

are the falls of Niagara, which aſtoniſh every beholder. The water ruſhes down a precipice 137 feet perpendicular; and the noiſe made by the fall may be heard at leaſt twenty miles off.

The falls of St. Maria, between lake Huron and lake Superior, do not deſcend perpendicularly, as thoſe of Niagara or St. Anthony do, but conſiſt of a rapid, which continues near three quarters of a mile, over which canoes well piloted, might paſs.

The falls of St. Anthony, on the Miſſiſſippi, are about 250 yards over, and form a moſt pleaſant cataract. They fall perpendicularly about thirty feet, and the rapids below, in the ſpace of 300 yards more, render the deſcent conſiderably greater. The noiſe of the falls may be heard 15 miles. The country round is extremely beautiful. On the whole, including the falls, which may be ſeen at the diſtance of four miles, a more pleaſing and pictureſque view cannot, perhaps, be found throughout the univerſe.

There is a remarkable caſcade or water fall in Auguſta county, Virginia, called the Falling Spring. It is a branch of the James, where it is called Jackſon's River, riſing in the mountain, 20 miles ſouth weſt of the Warm Spring. The water falls over a rock 200 feet, which is about 50 feet more than the fall of Niagara. Between the ſheet of water and the rock below, a man may walk acroſs dry.

The falls of Yochiogeny, called in the maps Ohiopyle Falls, are by far the moſt magnificent of

of any thing of this kind in the ſtate of Pennſylvania. The falls are by eſtimation, about 20 feet in perpendicular height, and the river is perhaps 80 yards wide. For a conſiderable diſtance below the falls the water is very rapid; and boils and foams vehemently, occaſioning a continual miſt to riſe from it, even at noon day, and in fair weather.

Caves.] About thirty miles below the falls of St. Anthony is a remarkable cave of an amazing depth. The Indians term it Wakonteebe, that is, the dwelling of the Great Spirit. The entrance into it is about ten feet wide, the height of it five feet. The arch within is near fifteen feet high, and about thirty feet broad. The bottom of it conſiſts of fine clear ſand. About twenty feet from the entrance begins a lake, the water of which is tranſparent, and extends to an unſeerchable diſtance. A ſmall pebble being thrown towards the interior parts of it, was heard to fall into the water, and cauſed an aſtoniſhing and horrible noiſe, which reverberated through all thoſe gloomy regions.

Madiſon's cave, in Virginia, is a curioſity. It is on the north ſide of the Blue Ridge, and extends into the earth three hundred feet. The vault or opening is from twenty to forty feet high, of ſolid limeſtone, through which water is continually percolating. The trickling down of the water has formed an incruſtration on the ſides of the cave; and the dropping from the top has formed ſolid ſpars, hanging like icicles; and on the bottom it has formed figures like ſugar loaves.

Anothe

Another cave is near the north mountain, in the county of Frederic. The entrance into this is on the top of an extenſive ridge. You deſcend thirty or forty feet into a well; from whence the cave then extends, nearly horizontally, four hundred feet into the earth, preſerving a breadth from twenty to fifty feet, and heighth from five to twelve feet.

In another ridge at the Panther Gap, Virginia, is the Blowing Cave; from which iſſues a conſtant ſtream of air, ſufficient to proſtrate weeds at the diſtance of twenty yards. The air is ſtrongeſt in dry froſty weather.

There is another blowing cave in Cumberland mountain, about a mile from where it croſſes the Carolina line. All we know of this is, that it is not conſtant, and that a ſtream of water iſſues from it.

In Kentucky, caves are found amazingly large; in ſome of which you may travel ſeveral miles. Near the head of Salt River a ſubterraneous lake has been diſcovered.

Springs.] In Virginia there are ſome medicinal ſprings, particularly the Warm Spring, which iſſues in a ſtream ſufficient to turn a griſt mill; its water, which is of a blood heat, is efficacious in the rheumatiſm. The Hot Spring is ſmaller—its heat has boiled an egg; and the water has relieved perſons when the Warm Spring has failed. Medicinal Springs are found in various other parts of the United States.

In Kentucky and other weſtern parts, there are

are many fine ſalt ſprings, that conſtantly emit water, which being manufactured, afford great quantities of ſalt. Beſides the ſalt ſprings, the ſoil, in various places in the country, is impregnated with a ſaltiſh ſubſtance; to which places the wild cattle reſort in vaſt herds, to lick the ground. The places are called the Salt Licks.

There are three ſprings or ponds of bitumen near Green River, which do not form a ſtream, but diſgorge themſelves into a reſervoir, and when uſed in lamps, anſwer all the purpoſes of oil.

Oil Creek.] On the Alleghany river, near Pittſburgh, there is a creek which, from an oily bitumous matter found on its ſurface, is named Oil Creek. This oil ſprings out of the bed of the creek, and is found pure without any mixture of water. The oil is ſaid to be efficacious in curing rheumatic pains and old ulcers.

On the ſouth ſide of Cumberland river is an allum bank.

Shining Mountains.] That range of mountains, of which the ſhining mountains are a part, begins at Mexico, and continuing northward on the back or to the eaſt of California, ſeparates the waters of thoſe numerous rivers, that fall either into the gulf of Mexico, or the gulf of California. Among theſe mountains, thoſe that lie to the weſt of the river St. Pierre, are called the Shining Mountains, from an infinite number of chryſtal ſtones of an amazing ſize, with which the-

they are covered, and which, when the sun shines full upon them, sparkle so as to be seen at at very great distance.

Sugar Tree.] In Vermont and the northern and western parts of New-York and Pennsylvania, in Kentucky and Ohio, there are a vast number of trees, called Sugar Maple; of which the inhabitants make a sugar equal in quality to that from the West Indies. It is said there are enough of these trees to supply the United States with sugar.

Big Bones.] In several parts of the western country very large bones are found, far surpassing the bones of any animal now known in America. The head appears to have been about three feet long, the ribs seven, and the thigh bones about four; one of which, deposited in the Philadelphia Library, weighs seventy five pounds; the tusks are about a foot in length, the grinders are about five inches square, and eight inches long. The skeleton of one of these animals is in Peale's Museum, in Philadelphia; but the whole race seems to be extinct.

Forts.] On the bank of the Mississippi, and other rivers, the remains of some ancient fortifications are to be seen, furnished with ditches and bastions. But it is impossible to tell when or by whom these forts have been constructed.

Natural Bridge.] This is the most sublime of nature's works. It is on the ascent of a hill which seems to have been cloven through its length

length by some great convulsion. The fissure, just at the bridge, is, by some admeasurements, two hundred and seventy feet deep; by others, only two hundred and five. It is about forty feet wide at the bottom, and nine feet at the top: this of course determines the length of the bridge, and its height from the water. Its breadth in the middle, is about sixty feet, but more at the ends; and the thickness of the mass, at the summit of the arch, above forty feet. A part of this thickness is constituted by a coat of earth, which gives growth to many large trees: the residue, with the hill on both sides, is one solid rock of limestone. The bridge is in Virginia, in the county of Rockbridge, to which it has given name; and affords a commodious passage over a valley, which cannot be crossed elsewhere for a considerable distance. The stream passing under it is called Cedar creek. It is a water of James river; and sufficient in the driest season to turn a grist mill, though its fountain is not more than two miles above.

A short Description of the most remarkable Beasts, Birds, *and* Reptiles *in North America.*

Beasts.] The BEAR. Beasts are very numerous on this continent, but more particularly so in the northern parts of it; and they contribute to furnish both food and beds for almost every Indian nation. In many respects they differ from those of Greenland and Russia; being not only smaller, but more timorous and inoffensive, unless pinched by hunger, or smarting from a

wound; the ſight of a man terrifies them, and a dog will put ſeveral to flight.

The CAT of the Mountain. This creature is in ſhape like a domeſtic cat, only much larger: the hair and fur reſembles that animal, but differs in colour, being of a reddiſh or orange caſt, and growing lighter near the belly. Its ſkin is beautified with black ſpots of different figures. It is nearly as fierce as a leopard, but will ſeldom attack a man.

The BUFFALOE. This beaſt is larger than an ox, has ſhort black horns, with a large beard under his chin. His head is ſo full of hair that it falls over his eyes, and gives him a frightful look: there is a bunch on his back which begins at the haunches, and increaſing gradually to the ſhoulders reaches on to the neck. Both this excreſcence and the whole body are covered with long hair, or rather wool, of a dun colour, which is very valuable. Its head is larger than a bull's, with a very ſhort neck; the breaſt is broad, and the body decreaſes towards the hinder parts. They are ſo timorous that a whole herd will make off at the ſight of a ſingle dog.

The DEER. The ſhape of the American deer is nearly the ſame as that of the European, but they are rather higher, and of a ſlimmer make. Their colour is a deep fallow, and their horns large and branching. They are the ſwiftest beaſts on the American plains.

The ELK is about the ſize of a horſe. Its body is ſhaped like a deer, except its tail, which is not more than three inches long. It has long coarſe

coarſe hair, of a grey colour. The horns of this creature grow to an amazing ſize, and extend ſo wide that two or three perſons might ſit between them at the ſame time; they are not forked like thoſe of a deer, but have all their teeth or branches on the outer edge.

The Moose is nearly the ſize of an elk, and the horns are almoſt as enormous; but the ſtem of them is not quite ſo wide, and they branch on both ſides like thoſe of a deer. Though its hinder parts are very broad, its tail is not above an inch long. It has feet and legs like a camel; its head is above two feet long; its upper lip much larger than the under one; and the noſtrils of it are ſo wide that a man might thruſt his hand into them a conſiderable way. The hair is a light grey, mixed with a blackish red. Its pace is always a ſwift trot.

The Caraboo. This beaſt is not near ſo tall as the mooſe. However, it is ſomething like it in ſhape, only rather more heavy, and inclined to the form of an aſs. Its horns are more like thoſe of a deer than either the elk or the mooſe. It is exceeding ſwift.

The Carrcajou. This creature, which is of the cat kind, is a terrible enemy to the preceding four ſpecies of beaſts. He either comes upon them from ſome concealment unperceived, or climbs upon a tree, and taking his ſtation on ſome of its branches, waits till one of them happens to paſs or take ſhelter under it: when he faſtens upon its neck, and opening the jugular vein, ſoon brings his prey to the ground; and

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the only means of avoiding this fate is by flying immediately to the water. As he has a great diſlike to that element, he is ſometimes fruſtrated before he can effect his purpoſe.

The SKUNK is the moſt extraordinary animal that the American woods produce. It is of the ſpecies of the polecat. Its hair is long and ſhining; variegated with large black and white ſpots. Its tail is very buſhy, like that of a fox. When purſued, he ejects a ſtream of water from behind to a great diſtance, of ſo powerful a ſmell, that the air is tainted with it for half a mile in circumference; and his purſuers, whether men or dogs, being almoſt ſuffocated with the ſtench, are obliged to give over the purſuit.

The PORCUPINE. Its body is in bulk about the ſize of a ſmall dog, but ſhorter, and not ſo high from the ground. It is ſhaped much like the fox, except the head, which is not ſo ſharp and long, but reſembles more that of the rabbit. Its body is covered with hair of a dark brown. He is armed with quills, near four inches long, about the thickneſs of a ſtraw; theſe quills are white, with black points, hollow and very ſtrong, eſpecially thoſe on the back. They ſerve him both for offenſive and defenſive weapons, which he darts at his enemies: and if they pierce the fleſh in the leaſt degree, they will ſink quite into it, and are not to be extracted without inciſion.

The BEAVER is an amphibious quadruped. The largeſt are near four feet in length, and weigh near ſixty pounds. Its ſnout is long,

and

and eyes ſmall, the ears ſhort, the teeth long, and the legs ſhort. With their teeth they cut down trees of a large ſize. The colour of the beaver is various, according to the climate; and its fur is of great value. Caſtor, a valuable medicine is produced from this animal. The ingenuity of theſe creatures in building their cabins, and providing their food is truly wonderful. They live in ſociety, and ſeem to have eſtabliſhed rules for their government.

Birds.] The EAGLE. There are only two ſorts of eagles in North America, the bald and the grey. The eagle is among birds what the lion is among beaſts. Of all birds the eagle has the quickeſt eye and flies the higheſt. They will ſteal young pigs, and carry them alive to their neſts, which are commonly compoſed of twigs, ſticks and rubbiſh.—The figure of the bald eagle is the great ſeal of the United States.

The NIGHT HAWK. This bird is in ſhape nearly that of a common hawk, but conſiderably leſs in ſize, and rather darker in colour. It is ſcarcely ever ſeen but in the evening; when, at the approach of twilight, it flies about, and darts itſelf in wanton gambols at the head of the belated traveller. Theſe birds, like the ſwallow, before a thunder ſhower may be ſeen aſſembled in great numbers at an amazing height in the air.

The WHIPPERWILL, or, as it is termed by the Indians, Muckawiſs. This extraordinary bird is ſomewhat like the night hawk in its ſhape and colour; and like that bird, is ſeldom ſeen till af-

ter ſun ſet. It is never to be met with but during the ſpring and ſummer months. It acquires its name by the noiſe it makes; which, to an American ear, ſounds like the name they give it, Whipperwill. At the approach of night, they will place themſelves on the fences, ſtumps, or ſtones, near ſome houſe, and repeat their melancholy notes till midnight.

The WAKON BIRD, as it is termed by the Indians, appears to be of the ſame ſpecies as the bird of paradiſe: and the name they have given it is expreſſive of its ſuperior excellence, and the veneration they have for it: the Wakon bird ſignifying in their language, the bird of the Great Spirit. It is nearly the ſize of a ſwallow, of a brown colour, ſhaded about the neck with a bright green. Its wings are of a darker brown than the body. Its tail is compoſed of four or five feathers, which are three times as long as its body, and which are beautifully ſhaded with green and purple.

The HUMMING BIRD. This beautiful bird, which is the ſmalleſt of the feathered inhabitants of the air, is about the third part the ſize of the wren, and is ſhaped extremely like it. Its legs, which are about an inch long, appear like two ſmall needles: and its body is proportionable to them. But its plumage exceeds deſcription: On its head it has a ſmall tuft of a jetty ſhining black; the breaſt of it is red; the belly white; the back, wings, and tail of the fineſt pale green, and ſmall ſpecks of gold are ſcattered with inexpreſſible grace over the whole. Beſides this, an

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almoſt imperceptible down ſoftens the colours, and produces the moſt pleaſing ſhades. With its bill, it extracts from the flowers a moiſture which is its nouriſhment. Over theſe flowers it hovers like a bee, but never lights on them; moving at the ſame time its wings with ſuch velocity, that the motion of them is imperceptible. It makes a humming noiſe, from whence it receives its name.

Reptiles.] The RATTLE SNAKE. There are two ſpecies of this reptile: one of which is termed the Black, and the other the Yellow. The latter of which is generally the largeſt. At their full growth they are upwards of five feet long, and the middle part of the body meaſures about nine inches round; from which it generally decreaſes towards both ends. The neck is proportionably very ſmall, and the head broad and depreſſed. They are of a light brown colour; the iris of the eye red; and all the upper part of the body brown, mixed with a ruddy yellow, and chequered with many regular lines of a deep black, gradually ſhading towards a gold colour. Theſe beautiful variegated colours are only to be ſeen in their higheſt perfection when this creature is animated by reſentment. The rattle at its tail, from which it receives its name, is compoſed of a firm, dry, callous, or horny ſubſtance of a light brown, and conſiſts of a number of cells which articulate one with another, like joints. The bite of this reptile is more or leſs venemous according to the ſeaſon; being moſt fatal in the dog days. It never acts offenſively; and neither purſues nor flies.

POLITICAL DIVISIONS.

NORTH AMERICA may be divided into the United States; the dominions of Spain; and the Britiſh Provinces.

Of the UNITED STATES, *in general.*

EXTENT AND BOUNDARIES.

The United States of North America lie between the 31ſt and 50th degree of north latitude, and between the 65th and 100th degree longitude weſt from London. Being about 1400 miles in length from north to ſouth; and in breadth to the northward 1200 miles, but at the ſouthward not more than 700. The boundary line fixed at the treaty of peace in 1783, is as follows.—Beginning at the north of St. Croix river in the Bay of Fundy, and along the middle of the ſaid river to its ſource; from thence north to the Highlands; along the ſaid Highlands to the head of Connecticut river; down ſaid river to the 45th degree of north latitude; thence due weſt till it ſtrikes the river Iroquois or St. Laurence, and along the middle of ſaid River to lake Ontario; through the middle of ſaid Lake, and of the Lakes Erie, Huron, Superior, Long Lake, and the Lake of the Woods, to its northweſt point; thence due weſt to the river Miſſiſſippi, and down the middle of ſaid river to the 31ſt degree of north latitude; thence by a line drawn eaſt to the river Apalachi-

Apalachicola; along said river to the Flint river; thence straight to the head of St. Mary's river; and down the middle of said river to the Atlantic ocean; including all islands within twenty leagues of the coast.——This territory contains nearly one million of square miles. On the north are Nova Scotia, Canada, and the Lakes; on the south, East and West Florida; on the east the Atlantic ocean; and on the west the Mississippi.—The boundary is now much enlarged on the west, by the purchase of Louisiana.

Soil and Climate.

Such an extent of territory must include a great variety of soils and climates. It lies, however, within the north temperate zone; and produces, or by cultivation may be brought to produce, every necessary, and even superfluity of life. It has been remarked that the soil near the coast is not so fertile as that to the westward; and that the northern states are more sterile than the southern. But this is balanced by the inhabitants on the coast having a readier market for their produce: and by the northern states having the advantage of a valuable fishery near their harbours.

Commerce and Manufactures.

The United States carry on a commerce with every part of the world. They export fish, naval stores, live stock, Indian corn, wheat, flour, iron,

iron, pot-ash, tobacco, indigo, rice, cotton, flax-seed, &c. : and import dry goods, hard wares, tea, coffee, sugar, spirits, wines, &c.

Manufactures in the United States, in many of the most useful branches, are increasing and making great progress towards perfection.

From October 1st, 1806, to September 30th, 1807, the value of goods exported from the United States, was 101,536,963 dollars.—Being a six fold increase in 20 years.

Religion.

In the United States there is no national establishment of religion; but all sects enjoy perfect liberty in worshipping the Almighty, according to the dictates of their own conscience, without being deprived of their civil rights as citizens.—Consequently, there are a great variety of religious sects in America: but the protestant religion is the most prevalent, in its various divisions of Episcopalians, Presbyterians, Independents, Baptists, Quakers, Methodists, &c. The Roman Catholics and Jews are also in considerable numbers. And if we include the Indians, the Pagan religion has also its votaries. All these different denominations, however, (except the last) live in harmony and good neighbourhood with each other.

Government.

The form of government in the United States and in each state, is Republican or Democratical;

cal; all the citizens being on an equality with reſpect to rights and privileges. Each ſtate, retains every power of an independent ſovereignty, except ſo much thereof as is delegated to the Congreſs of the United States. In the general government, the legiſlative power is in a Senate and Houſe of Repreſentatives; the executive power is in a Preſident; and the judicial power in Courts of Juſtice.—The Houſe of Repreſentatives are choſen by the people every ſecond year; the Senate are choſen by the legiſlatures of the ſtates, two by each ſtate, and continue in office ſix years.—The Preſident and Vice Preſident are choſen by electors, who are delegated by the people for this purpoſe; their term of office is four years.—The members of Congreſs, and the Preſident and Vice-Preſident may be re-elected as often as the people ſee meet.

In each of the ſtates the form of government is nearly the ſame as that of the United States.

History.

We have already noticed that North America was diſcovered in 1492. The country was then inhabited by numerous tribes of warlike Indians. Several attempts that were made to eſtabliſh colonies failed; the ſettlers either periſhed with hunger, or were cut off by the natives. The firſt permanent ſettlement was by the Engliſh, in Virginia, on James's river, about the year 1609. Colonies were afterwards planted in ſeveral parts; moſtly under the pro-

 tection

tection of the British Government; who in length of time, either by treaty or conquest, became possessed of the whole continent, from the frozen regions of the north to the Gulf of Mexico; and the colonies rapidly increased in population and wealth. But in the year 1765, the attempt of the British parliament to raise a revenue by taxation from the colonies, roused them to resistance and opposition. They united together for their mutual defence; and choose deputies to represent them in Congress, and to conduct their public affairs. The first Congress met at Philadelphia in September, 1774. A war ensued; and on April 19th, 1775, the first battle was fought at Lexington, near Boston. In the year following, July 4th, 1776, the Congress of the Thirteen United Colonies declared themselves to be free and independent states.

The war, however, was still carried on with vigour. Many battles were fought; great hardships endured; and much valour and magnanimity displayed, during the space of eight years that it lasted. Every state, except New-Hampshire, was, at different periods, the seat of war; and most of their capital cities in possession of the enemy. At length America triumphed. Early in the contest France acknowledged her independence, and lent her assistance. Other European powers followed the example; and in 1783 peace was established, whereby Britain gave up all claim to the dominion of these states. The

The confederation which the states entered into during the war being found insufficient for their government and security, a new constitution was formed in 1787, and organized in 1789.

George Washington, commander in chief of the American army in the late war, was twice unanimously elected President of the United States. He declined another election; and *John Adams* was then chosen. *Thomas Jefferson* succeeded; he was twice elected. *James Madison* is the present president.

Of each STATE *in particular.*

The northern part of the United States, situated on the sea coast, is called the *District of Maine;* but it belongs to the state of Massachusetts. It extends from Canada northward, to the ocean southward, and from Nova Scotia on the east to New-Hampshire on the west. It is 200 miles in length, and 200 in breadth. The rivers Kennebek and Sagahadoc run through it; and the coast is indented by Penobscot and Casco bays. Bowdoin college was incorporated in 1795. The principal towns are Scarborough, Old York, and Portland. It has 151,719 inhabitants. The principal exports are lumber and fish.

New Hampshire.

New Hampshire is of a triangular form: near 200 miles long, and of an irregular breadth.

It has the District of Maine on the north east; Connecticut river, which divides it from Vermont, on the west; Massachusetts on the south; and the ocean on the south-east. Portsmouth, the capital, is on Piscataqua river, and has a good harbour. The town contains 5,339 inhabitants. The ground is not fertile, but affords excellent pasturage. Its exports are lumber, pot ash, fish, and vessels. At Hanover, in the western part of the state, is a flourishing literary institution, called Dartmouth College. New Hampshire was first settled about the year 1621, and now contains 183,858 inhabitants.

Massachusetts.

Massachusetts is bounded on the north by New-Hampshire and Vermont; on the south by Connecticut, Rhode-Island, and the ocean; by the ocean on the east; and on the west by New-York. Its length is 150 miles, and its breadth 68. Connecticut river runs a southerly course through it; and there are several smaller ones that rise in it, and empty into the sea. The coast forming an angle in the ocean, renders a great part of the state convenient for navigation. Boston is the capital town, containing 24,937 inhabitants. The town stands on a peninsula, at the bottom of Massachusetts's Bay. On the north of the bay is Cape Ann, and on the south Cape Cod. The harbour is large and safe; but the navigation is rather dangerous, on account

count of the great number of islands in the bay. Salem, Newbury-port, Beverly, Worcester, and Springfield, are all flourishing towns. The state carries on a valuable fishery; and manufactures sail cloth, nails, paper, cotton and wool cards, shoes, and New-England rum. The principal exports are fish, rum, lumber, oil, and pot-ash. At Cambridge is an university, which is the oldest in America. There are also many public schools, academies, literary and humane societies. Massachusetts was settled about the year 1629; and received many emigrants during the persecution in England. They had long and bloody wars with the Indians. The population is 574,564.

Rhode Island.

This is a small state. It includes the island of the same name, and Providence Plantation, on the main land. It is about 40 miles long, and 30 broad. Bounded by Massachusetts on the north and east; and by the ocean on the south. The harbour of Newport is one of the best in the world. Providence river waters the state; and the soil is good for pasturage. Rhode Island has been called the Paradise of America. The principal towns are Newport and Providence, each containing upwards of 6000 inhabitants; at Providence is a college. The inhabitants carry on a considerable trade in the whale fishery; and export live stock, lumber, horses, cheese, &c.

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This state was first settled in the year 1639, chiefly by emigrants from Massachusetts, who fled from thence on account of their religion. The inhabitants amount to 69,122.

CONNECTICUT.

Connecticut has Massachusetts on the north; Long Island sound on the south; Rhode Island on the east; and New-York on the west. It is nearly 100 miles long, and 72 broad. The river Connecticut runs through this state. This river takes its rise near the Highlands which divide the United States from Canada; and after running a southerly course of 300 miles, empties into Long-Island sound. The other rivers are the Thames, Housatanick, and East river. The principal towns at Hartford and New Haven, in which the legislature hold their sessions by turns, New London and Middleton; each of them containing between 5 and 6000 inhabitants. The exports are horses, black cattle, provisions, and flaxseed. They have valuable manufactories, and one of broad-cloth has been recently established. At New Haven is a seminary of learning called Yale college, which has produced a number of distinguished literary characters. The first settlement in Connecticut was about the year 1639. It is now the most populous state in the union, in proportion to its size. The present inhabitants amount to 251,002.

VERMONT.

Vermont was formerly claimed both by New-Hampshire and New-York. At the beginning of the late war the people formed a civil constitution; and have since exercised the powers of an independent state. Vermont has Canada on the north; Massachusetts on the south; Connecticut river on the east; and New-York on the west. It is about 158 miles long, and 70 broad. It produces wheat and corn; and exports beef, horses, pot and pearl ashes. The number of inhabitants is 154,465. The chief town is Bennington. A college was founded in 1791 at Burlington, and one in 1800 at Middlebury.—New-York and New Hampshire having given up their claim, Vermont, in 1781, was admitted into the union.

Note. The states of New Hampshire, Massachusetts, Rhode Island, and Connecticut, are known by the name of New England; which at the first settlement, was the general name of the country. The present inhabitants are mostly descendants of the first English settlers; there being neither French, Dutch, nor Germans, and very few Scots or Irish in New England. In the space of a century they have increased, almost solely by natural population, including Vermont, to upwards of a million of souls.

NEW-YORK.

New-York is bounded on the north by Canada and Lake Ontario; on the south by Pennsylvania,

sylvania, New Jersey, and the Ocean; on the east by Connecticut, Massachusetts, Vermont, and Lake Champlain, and on the west by New Jersey Pennsylvania, and part of Lake Erie. It is 350 miles long, and of an unequal breadth, narrow towards the sea, but to the north-west it is 300 miles broad. The capital city, New-York, is pleasantly situated on the south point of an island, at the confluence of the East and Hudson's rivers, which form the bay of New-York. The city is elegant, has a spacious harbour, and has the largest foreign trade in the United States. The inhabitants amount to 60,496. Near the city is a college called Columbia. There is also a college in Schenectady. Albany lies on Hudson's river, 160 miles above New-York; it contains about 600 houses, and is one of the oldest towns in America. Poughkeepsie, Lansingburgh, Kingston, and Schenectady are pleasant little towns. The city of Hudson, 30 miles below Albany, has been lately built, and is rapidly increasing. Hudson's river rises near Lake Champlain, and runs nearly the whole length of the state, a course of 300 miles, affording great advantages for the trade of Canada and the Lakes. Mohawk river falls into the Hudson above Albany. In the northern parts of the state are several small rivers and lakes. The principal exports are wheat, flour, Indian corn, pot-ash, and flax-seed. Long-Island and Staten Island belongs to this state; the former is upwards of 100 miles in length, and stretches along Connecticut,

necticut, from which it is separated by the sound. New-York was first settled by the Dutch, in 1615, who kept possession of it till 1664; when it was taken by the English, and afterwards confirmed to them by treaty, in 1667. A considerable part of the present inhabitants are the descendants of the first settlers. The remains of some Indian tribes inhabit the northern parts of the state. The whole number of souls is 586,050.

New Jersey.

New Jersey is bounded by New-York on the north; by the sea on the south; by the ocean and Hudons's river on the east, by Delaware river, which separates it from Pennsylvania on the west. It is 160 miles long, and 50 broad. Its rivers are Raritan, Pasaick, and Hackensack, none of them large; and it has also a great number of creeks or rivulets. The towns in New Jersey are but small; scarce one of them containing 300 houses. The most considerable are Trenton, Burlington, Elizabeth-town, Newark, and Shrewsbury. At Princeton there is a college called Nassau Hall, in which many eminent men have been educated. There are also a number of valuable academies in the state. The foreign trade of this state is chiefly through the mediums of New-York and Philadelphia. Its exports are wheat, corn, flour, pork, iron, flax-seed, and lumber.—New Jersey was first settled by the Dutch from New-York, and a colony

colony from Sweden, between the years 1614 and 1620. The English afterwards took possession of it, and made a settlement about the year 1679. The inhabitants now amount to 211,149.

Pennsylvania.

Pennsylvania is bounded on the north by New-York ; on the south by Delaware state, Maryland, and part of Virginia ; on the east by Delaware river, and part of New-York ; and on the west by the state of Ohio and Lake Erie It is 350 miles long, and 160 broad. The river Delaware rises in New-York, and runs upwards of 300 miles, till it falls into the Atlantic, 150 miles below Philadelphia, between Cape May and Cape Henlopen. One branch of the river Susquehannah rises in New York, and the other in Pennsylvania, and receiving the Tioga and the Juniata, it proceeds through Pennsylvania, and falls into Chesapeake bay, in Maryland. The Schuylkill empties into the Delaware near Philadelphia. The Monongahela and Alleghany have their source in the western parts of the state ; and joining their streams at Pittsburgh, gave rise to the Ohio. Philadelphia is the capital, and the largest and most regular city in America. It is situated between the Delaware and Schulykill, and contains 41,220 inhabitants ; but including the suburbs, they amount to upwards of 90,000. The buildings along the Delaware extend three miles, and to the westward

westward above a mile. Lancaster is the largest inland town in America. Germantown, Reading, Harrisburgh, Carlisle, York, and Pittsburgh, are also flourishing inland towns. At Philadelphia is an university, and several academies; a public library, a philosophical hall, a dispensary, an hospital, a house for the employment and support of old and infirm people; a Magdalen Society, and several other humane and public spirited institutions. There is a college at Carlisle, one at Washington, and one at Cannonsburgh; and, as the Germans form a large proportion of the inhabitants, the erection of a college at Lancaster has lately been attempted, where the sciences are to be taught through the medium of the German language. The trade carried on by this state is immensely great; as her agriculture is in higher perfection and her manufactures more numerous, than, perhaps, in any other state in the union. Flour is the staple article of produce. Pennsylvania was granted to William Penn, an eminent Quaker; in 1680: and in 1682 the settlement of the province began: and increased with great rapidity, on account of the good terms offered to settlers. The inhabitants are 602,363.

The market of Philadelphia is reckoned one of the finest in the world, on account of the variety, plenty, and excellence of its provisions.

DELAWARE.

Delaware.

Delaware is the smallest state in the union. It is 90 miles in length, and 20 in breadth. Bounded by Pennsylvania on the north; by Maryland on the south and west; and by Delaware bay and river on the east. Dover is the capital town, Newcastle the oldest, but Wilmington is the largest and most pleasant. Academies are founded at Wilmington and Newark. The principal exports are flour and corn. Delaware state was settled by the Dutch in 1620. Some years afterwards a colony of Swedes came over; and their descendants still remain in several parts of Delaware, New Jersey, and Pennsylvania. In 1669 the English took possession of this country, and in 1683 it was granted to William Penn. The inhabitants are 64,273.

Maryland.

Maryland is bounded by Pennsylvania on the north; by the ocean and Virginia on the south: by Delaware state on the east; and by Virginia on the west; Being 139 miles in length, and of various breadths, but not exceeding 110 miles. It is divided by the bay of Chesapeake into two parts called the Eastern and Western shore. The river Susquehannah falls into Chesapeake bay, within the limits of Maryland; and the Potomac divides it from Virginia. This river is one of the noblest in the United States: it has its source

in

in the Alleghany mountains, and empties into Chesapeake bay, after running through 400 miles of a fertile country. The other rivers in this state are small. Annapolis, the capital is a small city, containing 2000 inhabitants. Baltimore is the principal trading city, situated on an arm of the Chesapeake, with a good harbour. It contains 2,500 houses, and 28,214 inhabitants. Fredericktown and Hagerstown are in the inland parts of the state. The principal exports of Maryland are tobacco, wheat, flour, Indian corn, and pig iron. There is a college at Chestertown, and another erected at Annapolis; both founded by the state, and are to be stiled the University of Maryland. The Roman Catholics have a college at Georgetown, and the Methodists one at Abingdon.—In 1632, Charles I. of England, granted the province of Maryland to Lord Baltimore, a Roman Catholic; accordingly, the Roman Catholics were the first settlers. The Protestant religion was afterwards established; but at the revolution all religions were put on an equality. The inhabitants, are 349,692, near one third of whom are slaves.

DISTRICT of COLUMBIA.—In the Constitution of the United States, Congress are impowered to exercise exclusive legislation over such districts (not exceeding ten miles square) as may, by the cession of particular states, and the acceptance of Congress, become the seat of

of the government of the United States.—Congress have accepted a district, ceded to them by the states of Virginia and Maryland, on both sides of the Potomac, including the town of Alexandria in Virginia, and Georgetown in Maryland. An elegant city has been laid out on the Maryland side of the Potomac, at the junction of the eastern and western branches of said river, and extending near four miles up each branch. The district is called COLUMBIA, and the city is called WASHINGTON. Congress held their first session here in the year 1800. The city of Washington lies nearly equidistant from the northern and southern extremities of the United States, and from the Atlantic to Pittsburg.—The inhabitants are about 12,000.

VIRGINIA.

Virginia is about 450 miles in length, and 234 in breadth. Bounded on the north by Maryland, Pennsylvania, and Ohio; south by North Carolina; east by the ocean; and west by Kentucky. The bay of Chesapeake enters the eastern part of this state, between Cape Henry and Cape Charles, and extends 270 miles to the northward, affording good harbours, and receiving several large rivers. Besides the Potomac, already described, are James, river, York river, Elizabeth river, and Rappahannoc, all emptying into the bay; with a great number of smaller streams.—There are no large towns in Virginia. Rich-

mond.

mond, on James river, is the capital, with 6000 inhabitants. Norfolk is the principal place for trade. This state is the largest and oldest in the union. On the Potomac, near Alexandria, is Mount Vernon, the seat of the late President Washington. At Williamsburg is a college called William and Mary; in Prince Edward county is another called Hampton Sidney, and another is at Lexington. Virginia exports tobacco, wheat, Indian corn, and pork.—In 1606 the first permanent settlement was effected: Its inhabitants are 886,149; near one half whereof are slaves. This state has given three Presidents to the United States.

KENTUCKY.

Kentucky is bounded by the Ohio on the northwest; by North Carolina on the south; on the east by Virginia; and on the west by Cumberland river; being 250 miles long, and 200 broad. The soil is very fertile, and watered by Kentucky, Dick's, Elk-horn, Salt, and Green rivers, and many creeks: these all fall into the Ohio. Lexington, the capital, contains 1,795 inhabitants; and there are several other small towns in it. The legislature have made provision for establishing a college. They export tobacco, wheat, &c. and trade down the Mississippi. No settlement was made in this country before 1775: and notwithstanding it was very much harassed by the Indians during the revolutionary war, it

continued to increase, and now contains 220,955 inhabitants.—Kentucky was formerly a part of Virginia; but that state having relinquished its jurisdiction over this territory, it was admitted into the union, as one of the United States.

North Carolina.

North Carolina has Virginia on the north; South Carolina on the south: the ocean on the east; and state of Tennessee on the west; It is 450 miles in length, and 180 in breadth. The chief rivers are Cape Fear, Neus, and Roanoke. The broad Tennessee, or Cherokee river, rises in this state, and after a crooked course of 600 miles, falls into the Ohio. The principal towns are Newbern, Edenton, Wilmington, and Fayetteville; the largest of them not exceeding 400 houses. Raleigh is the capital, containing about 80 houses. The shoals of Cape Fear, Hatteras, and Look out, render the coast rather dangerous for vessels. The exports are lumber, turpentine, tar, pitch, corn, tobacco, and cotton. Their trade is carried on chiefly through Charleston, S. Carolina, and Petersburg, Virginia. There is an university established in North Carolina, and two or three academies are in a flourishing way. The first permanent settlement was made about the year 1710: the inhabitants have rapidly increased, and now amount to 478,103, of whom one third are negroes.

South

South Carolina.

South Carolina has North Carolina on the north; Georgia on the south; the ocean on the east; and Tennessee on the west. It is 200 miles long, and 125 broad. The principal rivers are the Savannah, which divides the state from Georgia, the Santee, the Pedee, and the Edisto. Charleston, the capital, is situated between Ashly and Cooper rivers: their confluence, a little below the town, forms the harbour, which is very commodious, and only seven miles from the sea. It is a regular city, containing about 3 000 houses, generally well built, and has 20,571 inhabitants. The other towns of note in South Carolina, are Georgetown, Beaufort, Cambden, Winnsborough, Jacksonsborough, and Columbia. It exports rice, indigo, lumber, cotton, and tobacco. Colleges are founded at Charleston, Winnsborough, and Cambridge. Several attempts were made to settle this country, but none proved effectual till the year 1669. The inhabitants are 345,591, in number; whereof near one half are negroes.

Georgia.

Georgia is the southernmost, and was the last settled of the United States. It is bounded by South Carolina on the north; by the Floridas on the south; by the ocean on the east; and the Mississippi territory on the west.

It

It is 260 miles in length, and 250 in breadth. Savannah, Altamaha, and Ogechee, are the most considerable rivers, besides St. Mary's, which is part of the boundary between the United States and Florida. Augusta contains about 1,200 inhabitants. Savannah is situated on a river of the same name, near the sea, and has a fine harbour. The other towns are Louisville, the capital, Frederica, which is convenient for trade, Sunbury and Brunswick, all small. A college is at Louisville, and provision is made for an academy in each county. Cotton, corn, rice, lumber, and tobacco are the chief exports of Georgia. The Tea Shrub is cultivating. In the western parts of this state, and of South Carolina, are several tribes of Indians. Georgia was first settled in 1732, and the inhabitants are now 162,686, of whom above one third are negroes.

Tennessee.

Tennesse is bounded by Kentucky on the north; by Georgia on the south; by North Carolina on the east; and by the Mississippi on the west. Being 400 miles in length, and 105 in breadth. The climate is healthy, and the soil rich. It produces wheat, rye, corn, tobacco, indigo, and cotton. The river Tenessee runs through the state, and opens a market for its produce to the Mississippi. Three colleges are founded, and several academies opened. Knoxville is the capital, with 549 inhabitants. The first settlement of this territory

ritory was in 1765. It contains 105,602 inhabitants.

Ohio

Is 200 miles long, and 200 broad. Bordered on the north by lake Erie; south by the Ohio river; east by Pennsylvania; and west by Indiana territory. The principal rivers are Muskingum, Hockhocking, Sciota and Miami. The soil is excellent, and the climate healthy. The exports are, flour, corn, cotton, beef, pork, lumber &c. The capital town is Chilicothe, containing about 200 houses. Marietta, Cincinnati, and Gallipolis are thriving towns. The legislature has founded and endowed an university.—Ohio was part of the Northwestern Territory; and having attained a suitable population, it was in 1802, erected by Congress into a state, and admitted into the Union. The inhabitants are, 45,854.

Indiana.

That part of the Northwestern Territory not included in the state of Ohio, is named Indiana, and Michigan. They are erected into separate governments; and a Governor, Judges, and other officers, are appointed by the President of the United States. Vincennes is the capital of Indiana; and Detroit of Michigan.

Mississippi Territory.

This territory comprehends the western part of Georgia lately ceded to Congress, and

in 1800 it was erected into a separate government. It is a most beautiful country, and is the southwest extremity of the United States. Its principal settlement is the Natchez. Its inhabitants are 8,350. These territories will in a short time become new states.

A Comparative View of the UNITED STATES, 1800.

STATES.	*Numb. of Inhabit.* 1800	*Compar. Memb.*	*Chief Cities with their Population.*	
New Hampshire,	183,858	5	Portsmouth	5,336
Massachusetts,	564,564	17	Boston	24,937
Connecticut,	251,002	7	New Haven	5,347
Vermont,	154,465	4	Middlebury	1,234
Rhode Island,	68,122	2	Newport	6,739
New-York,	586,050	17	New-York	60,496
New-Jersey,	211,149	6	Trenton	2,000
Pennsylvania,	602,365	18	Philadelphia	41,220
Delaware,	64,273	1	Wilmington	3,000
Maryland,	349,692	9	Baltimore	26,214
Virginia,	886,149	22	Richmond	5,737
North Carolina,	478,108	12	Raleigh	400
South Carolina,	345,591	8	Charleston	20,571
Georgia,	162,686	4	Louisville	——
Kentucky,	220,955	6	Lexington	1,795
Tennessee,	105,602	3	Knoxville	519
Ohio,	45,854	1	Chilicothe	——
Indiana Territory,	5,365		Vincennes	714
Mississippi Terri	8,850		Natches	——
Michigan,	3,206		Detroit	2,000
			1809, Supposed about	7,000,000
	5,278,5181	141		

LOUISIANA lies on the west bank of the Mississippi. The French had a colony here until 1763, when it was ceded to the Spaniards. In 1800 it was again ceded to France; who, in 1803, sold it to the United States for fifteen millions

millions of dollars. Congress have established two temporary governments. The boundaries of this country are not yet defined, but it is very extensive, watered by large rivers, and of a fruitful soil, producing sugar, and other most valuable articles. Upwards of 100 miles from the mouth of the Mississippi is the city of New Orleans, which is the general repository of the produce brought down the Ohio and Mississippi, and contains 11,000 inhabitants.

British Colonies.

Canada has New Britain on the north; the United States and Nova Scotia on the south and east; and on the west, parts unknown. It is 820 miles long, and 300 broad. The winter continues near six months in the year. It exports fish, lumber, wheat and oil; but principally furs and peltries. The large river St. Laurence runs through this province; and in the Gulf of St. Laurence lie the islands of Anticosti, St. John, and Cape Breton. Montreal and Quebec are the chief cities—Canada was first settled by the French in 1608, and retained by them till 1759, when the English conquered it. The inhabitants are now about 200,000; a great many of whom are French, or descendents of the French settlers.

Canada has been lately divided into two provinces, the one called Upper Canada, and the other Lower Canada.

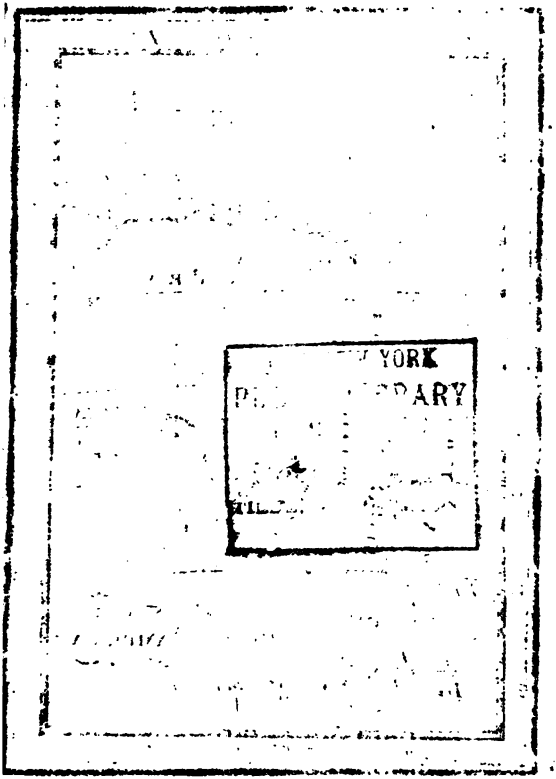
Nova Scotia, including New-Brunswick, extends

extends from the District of Main, to the Gulf of St. Laurence; and from the ocean to Canada. It is 250 miles broad, and 350 long. St. John's river runs nearly the length of the province. The principal towns are Halifax and Annapolis, both having good harbours. Shelburne is a considerable town, built by the royalists, or adherents to the British, who left the United States at the conclusion of the war. This country is cold and mostly barren; its inhabitants, about 50,000, chiefly subsist by their fisheries. The southermost point of Nova Scotia is called Cape Sable; within which is the bay of Fundy. Nova Scotia was early settled, but the population is inconsiderable.

New Britain is the most northerly part of America. It is a cold and barren country, inhabited by some wandering tribes of savages. It has many bays and rivers. The British trade to it for furs and fish.

Spanish Provinces.

East and West Florida lie between the state of Georgia and the Gulf of Mexico, the Atlantic and the Mississippi. They are 500 miles in length, and 200 in breadth. The capital of East Florida is St. Augustine; the chief city of West Florida is Pensacola. The soil is fruitful, the climate warm, and in some parts unhealthy. Cape Florida is the eastern-most point of the province, and juts considerably into the ocean. The Gulf of Florida is to the


YORK
PU RARY

Longitude 80 West 70 from 60 London 50 40
Little Antilles
Venezuela
TERRA FIRMA
R Oronoko
Surinam
GUIANA
ATLANTIC
R Amazon
AMA-
Equinoctial
Line
Quito
R Amazon
Payta
-ZONIA
R Madera
R Tocantins
BRA-
PERU
Lima
Andes
St Salvador
SIL
SOUTH SEA
OCEAN
Tropic
of Capricorn
TUCUMAN
PARA-GUAY
St Catherin I.
Juan Fernandez
St Jago
CHILI
R Plate
C. St Anthony
MAGELLANICA
I of Chiloe
Patagonia
SOUTH AMERICA
Falkland Is
York I
Trinity I
Str of Magellan
Cape Horn
90 80 70 60 50 40 30

the northward of the Cape, and the Gulf of Mexico to the southward.

California is a peninsula, separated from New Mexico, by the Gulf of California, it has not yet been settled by the Spaniards.

New Mexico, Louisiana, and California include an extensive tract of country, but very little known. They lie between the Mississippi and the Pacific ocean; have Old Mexico on the south, but stretch northward without any particular boundary. Santa Fee is the capital of New Mexico.

Old Mexico, or New Spain, has New Mexico on the north; and extends southward along the isthmus of Darien to Terra Firma; on the east is the Gulf; and on the west is the Pacific. Being 2000 miles long, and from 60 to 600 miles broad. It is a rich country, containing mines of gold and silver, and producing other valuable articles of commerce, as cocoa, cochineal. Mexico, and Acapulco, a maritime town on the Pacific, are the chief towns. Mexico was the first country the Spaniards took possession of on the continent. It was populous, and the natives had made some progress in civilization; but the Spaniards destroyed several millions before they were subdued.

SOUTH AMERICA.

South America is of a triangular form, lying in the vast Southern ocean, and almost encompasse

encompassed by it. The isthmus of Darien joins it to North America; and the mountains called the Andes, extend from the isthmus almost to the southern extremity, which is nearly 4000 miles, and are the highest in the world. It is watered by the large rivers Oronooko, La Plata, Amazon, Para, and St. Francis, with a great number of smaller ones.

The Spanish and Portuguese provinces in America are governed by viceroys from Europe, who live in great splendor. The chief cities are very magnificent; and the trade is of great value. The Roman Catholic religion is professed by the Europeans; and the priests say they have converted many of the natives.

There is but a small part of this extensive continent properly known, settled or improved, owing to the policy of its European masters.

Spanish Provinces.

Terra Firma extends from old Mexico to the river Oronooko, 700 miles: and from the Atlantic to the Pacific ocean, 1400 miles. It produces corn, sugar, tobacco, &c. Panama, on the Pacific, Porto Bello and Carthagena, on the east side of the isthmus, are the chief towns. Pearls are found in the bay of Panama.

Peru is a very pleasant and populous country; lying between the mountains of the Andes and the Pacific ocean. On the north is Terra Firma, and Chili on the south. It is 2000 miles long, and 500 broad. It abounds in

in gold and silver mines; and from thence come Peruvian bark, balsam of Peru, quicksilver, &c. The capital city is Lima.

CHILI lies on the southward of Peru, along the Pacific ocean. The Spaniards have two towns on the coast, St. Jago, and Baldavia; but they were never able to subdue the natives. This province exports provisions and some gold.

PARAGUAY is a level, pleasant, and fruitful country, on the Atlantic side of south America. It is 1500 miles long, and 1000 broad. Buenos Ayres, on the river Plata, is the chief town. In this country are some gold and silver mines.

Portuguese Settlement.

BRAZIL lies between Amazonia and Paraguay, and the Atlantic and Peru. It is very large. The Portuguese took possession of this country about 1530. It is said a vein of gold runs through the whole province; and dimonds, amber, chrystal, and jasper are found in it. These with the cotton, tobacco, sugar, and drugs for medicine and manufactures, may give an idea of the value of the country. The capital is Rio Janeiro, containing 200,000 inhabitants. The Portuguese government has lately removed to Brasil.

French and Dutch Colonies.

GUIANA lies between the river Oroonoko and Amazon, and extends from the Atlantic to Terra

Terra Firma. It is divided into two parts:—Cayenne, which belongs to the French; and Surrinam, belonging to the Dutch. The country produces coffee, cotton, sugar, tobacco, &c. and is a rich and valuable settlement.

Countries in possession of the Natives.

PATAGONIA is a large tract of country, at the southern extremity of the continent. It is cold and barren.

TERRA DEL FOGO is an island separated from the continent by the Straits of Magellan. The southermost point of land is called Cape Horn.

American Islands.

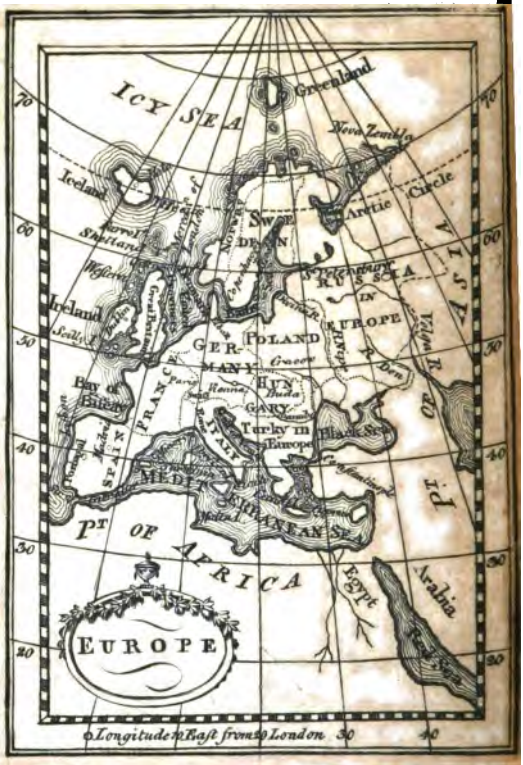
In the great gulf between North and South America, lie a vast number of islands, denominated the West Indies. They extend from the 60th to 85th degree of west longitude, and from the 10th to the 23d of north latitude. Those that lie neareſt the east have been called Windward islands, the others the Leeward. They produce sugar, rum, coffee, cotton, indigo, &c.; and are possessed by different European powers.—During war they often change masters.

Spanish islands.—Trinidad, Margaretta, Porto Rico, Cuba, and St. Domingo, in which the negroes have established their independence, and call it by its original name, Hayti.

Dutch islands—Curracoa, St. Eustatius, Saba, and St. Martins which is partly French.

Danish islands—St. Thomas, and St. Croix.

French


ICY SEA
Greenland
Nova Zembla
Iceland
Arctic Circle
SWE
DEN
RUSSIA
EUROPE
Ireland
POLAND
GER
MANY
HUN
GARY
Turky in Europe
Black Sea
Bay of Biscay
FRANCE
SPAIN
MEDIT
MEDITERRANEAN SEA
Pt OF AFRICA
Egypt
Arabia
Red Sea
EUROPE
Longitude East from London
70
60
50
40
30
20
0
10
20
30
40

French islands—Martinico, Guadaloupe, St. Lucia, Tobago, Grenada, St. Bartholomew, Deseada, and Marigalante.

English islands—Jamaica, Barbadoes, Dominica, St. Vincent, Montserret, Anguilla, Barbuda, Nevis, Antigua, St. Kitts, and Tortola.

In these islands, for many years past, the poor negroes have undergone the most wretched slavery. But benevolence and humanity begin to prevail so universally, that we have good ground to believe the condition of our sable fellow creatures will be rendered more happy.

The Falkland islands lie on the east coast of South America near Cape Horn. Juan Ferdinandes is on the west side of America, opposite Chili. The Gallepago isles lie under the equator, opposite Peru; these belong to Spain.

Northeast of the West-Indies, and opposite the Floridas, are the Bahama islands; east of the Carolinas, are the Bermuda islands; and opposite to Nova Scotia is Newfoundland, famous for its fisheries: these belong to England.

EUROPE.

Leaving America, we pass over the Atlantic ocean to Europe, which, though the least extensive quarter of the globe, is in many respects that which, next to our own country, most deserves our attention. There the human mind has made the greatest progress towards its improvement; and there the arts, whether of util-

ity or ornament, the ſciences, both military and civil, have been carried to the greateſt height and perfection. If we except the earlieſt ages of the world, it is in Europe we find the greateſt variety of character, government, and manners; and from thence we draw the greateſt number of facts and memorials, either for our entertainment or inſtruction.

Description.

Europe is ſituated between 10 degrees weſt and 65 eaſt longitude; and between 36 and 72 degrees north latitude. Bounded by the icy ſea on the north; by the Mediterranean, which divides it from Africa, on the ſouth; by Aſia on the eaſt; and by the Atlantic ocean on the weſt: being 3000 miles long, and 2500 miles broad.

The chief mountains in Europe are, the Alps, between France and Italy; the Appenine hills, in Italy; the Pyrenean hills, that divide France from Spain; the Carpathian mountains in the ſouth of Poland; ſome high hills in Britain; the burning mountains, or volcanoes, of Veſuvius and Stromboli, in Naples; Etna in Sicily; and Ecla in Iceland.

History.

Europe was chiefly peopled by the deſcendants of Japheth, the ſon of Noah. Theſe people having removed ſo far from their former habitations in Aſia, loſt all connection with the civilized part of mankind, and ſunk in an abyſs of

of ignorance and barbarity. The country was divided into a number of ſmall ſtates, who were almoſt continually engaged in wars with each other.—Greece was the firſt European country that made progreſs in civilization, and was long famous in arts and arms; and, under Alexander the Great, obtained the empire of the world. The Romans were the next people that emerged from barbarity. They carried their conqueſts over a great part of the globe; and ſucceſsfully cultivated the arts and ſciences. In the fifth century the Roman empire was overturned by the irruptions of the Goths and Vandals, or northern barbarians; who eſtabliſhed kingdoms in France, Spain, Italy, &c. From the 5th to the 16th century, Europe exhibited a long night of ignorance and ſuperſtition. Learning then revived; printing was invented, and greater progreſs is now made in civilization than we find in any other period of hiſtory.

DIVISIONS.

Europe is divided into the following empires, kingdoms, and ſtates:

DENMARK.

Denmark, lying on the north of Germany, is made up of eight iſlands in the Baltic ſea, and a peninſula, called Jutland. It is about 250 miles long, and 180 broad; and it contains 2,229,000 inhabitants. The iſlands are named Zeland, Funen, Langland, Laland, Falſter, Mona, Femerem,

rem, and Alſon. Jutland, the peninſula, is divided into north and ſouth: the north part has retained the name Jutland; but the ſouth part, which borders upon Germany, is called the duchy of Sleſwick. Denmark is a hereditary kingdom, and governed in an abſolute manner. The religion is Lutheran; no other being tolerated. It is a flat, cold country, and in general an indifferent ſoil: very little corn, except rye, grows here; but there are ſome parts of the peninſula very fertile. Exports are timber, lean cattle, dry fiſh, iron, and naval ſtores. Copenhagen is the metropolis, a large, rich, and well fortified town, where there is about 100,000 inhabitants. Chriſtian VII is the preſent king, and an abſolute monarch: he was born in 1749.

Norway, Iceland, Greenland, Nova Zembla, and Faro, are ſubject to Denmark: they are cold and barren countries.

Denmark, the ancient kingdom of the Goths, was very little known till the year 714, when Corma was king, and Suenon, king of Norway, in 998. Theſe two kingdoms were united under Eric IX, in 1412. The crowns were elective till 1660, when it was declared hereditary, in favour of Frederic III.

SWEDEN.

Sweden almoſt encompaſſes the Baltic ſea. It is bounded by Daniſh Lapland on the north; by the Baltic on the ſouth; by Ruſſia on the eaſt; and by Norway on the weſt. It is 800 miles in length, and 500 in breadth; and it contains

2,500,000

2,500,000 inhabitants. A great part of this country is uninhabitable. The air is cold, but wholesome. Denmark and Sweden have neither spring nor autumn: summer bursts from winter, and continues three months, during which time vegetation is amazingly rapid. The wealth of Sweden arises from her iron works. The Lutheran religion is established, but others are tolerated. Stockholm is the capital, and contains 60,000 inhabitants. The government is an absolute monarchy.

We have no certain account of this country till the reign of Bornio, A. D. 714. Margaret, queen of Denmark and Norway, was called to the throne of Sweden, on the forced resignation of Albert, their king, A. D. 1387. It remained united to the Danish crown till 1523; when the famous Gustavus Vasa expelled the Danes. It has ever since remained independent; but was made an absolute monarchy by the late Gustavus, in 1772. Gustavus IV. born in 1778, is the present king.

RUSSIA.

Russia is the largest empire in Europe, and, if we add its Asiatic dominions, larger than all the rest of Europe. It comprehends the northern parts of Europe and Asia. It has the frozen ocean on the north; Turkey and Tartary on the south; on the east it reaches very near to the northwest coast of America; and Sweden and Poland on the west. It contains

24,000,000 of inhabitants. A country so extensive must have a great variety of soil and climates. It comprehends forty-four different nations, as the Cossacs, the Tartars, the Tunguſians, &c. —Great improvements have lately been made, and are ſtill making, as to the civilization of the inhabitants, the extending of commerce, and the advancement of manufactures and agriculture. The chief rivers are the Wolga, the Don, and the Boriſthenes; all very large. The eſtabliſhed religion is the Greek church; but Roman Catholics and Proteſtants are in ſome degree tolerated; and many of the inhabitants are Mahometants and Pagans. The government is an abſolute monarchy. Peterſburgh is the chief city; it contains 130,000 inhabitants.

The hiſtory of this empire, which is now of ſuch importance in the affairs of Europe, has its commencement only A. D. 862, when Ruric was grand duke of Novogorod, in this country. In the year 981, Wolidimer was the firſt Chriſtian king. About 1058 the Poles conquered it, but it is uncertain how long they kept it. Andrey I, began his reign in 1158, and laid the foundation of Moſcow. About 1200 the Mungul Tartars conquered it, and held it ſubject to them till 1540, when John Baſilowitz reſtored it to independency. About the middle of the ſixteenth century, the Ruſſians diſcovered and conquered Siberia. It became an empire in 1721. Peter I, (one of the moſt extraordinary men that ever lived) aſſumed the title of Emperor of all the Ruſſias, which was admitted by all the powers

powers of Europe in subsequent negociations. In the year 1740, a revolution was effected without bloodshed, in favour of the empress Elizabeth; and another in 1772, in favour of the empress Catharine II, who deposed her consort Peter III. Her reign was the admiration of Europe. She extended commerce, improved the empire, and cultivated the sciences.—Alexander I, born 1777, is the present sovereign.

Great Britain.

Great Britain is an island, divided into England and Scotland.——England is bounded on the north by Scotland; on the south by the English channel which divides it from France; on the east by the German ocean; and on the west by St. George's channel, and the Irish sea. It is 360 miles in length, and 300 in breadth; containing 9,000,000 of inhabitants. The soil is generally fertile, and is highly cultivated. The principal rivers are the Thames, the Medway, the Severn, the Trent, the Humber, and the Dee. England carries on an extensive commerce to all parts of the world; and her manufactures are very numerous and excellent. The Episcopalian religion is established; but other sects are tolerated. The government is a mixed, or limited monarchy: no law can be passed without the consent of the king, lords, and commons. London, the metropolis, contains near 900,000 inhabitants.

Britain was little known before the invasion of Julius Cæsar, fifty years before the birth of Christ

Chriſt; and then its inhabitants were remarkable for their barbariſm and ferocity. The Romans governed England 500 years. When they retired, the Scots and Picts, who inhabited the northern parts of the iſland, continually haraſſed the Engliſh, and laid waſte the country: on which they invited over the Saxons, a German nation, to their aſſiſtance. The Saxons came, and defeated the invaders: but afterwards enſlaved or extirpated thoſe whom they came to defend; and governed the country upwards of 500 years. The Danes then conquered the kingdom, and kept poſſeſſion 30 years. In the year 1066, William the Conquerer, duke of Normandy, came over from France, and eſtabliſhed himſelf upon the throne. Almoſt perpetual wars have ſubſiſted between France and England, ſince the Norman conqueſt. In 1264, the Parliaments were firſt called. Many ſtruggles were made by the people for liberty, civil and religious; they were finally ſucceſsful, at the revolution in 1688. George III. born June 4th, 1738, is the preſent king.

Scotland has the northern ocean on the north; England on the ſouth: the Britiſh or German ocean on the eaſt; and the Atlantic on the weſt. It is 300 miles in length, and 150 in breadth; and contains 3,000,000 of inhabitants. Its ſoil is not ſo fertile as that of England. The principal rivers are the Forth, the Tay, the Spey, the Tweed, and the Clyde: and there are ſeveral beautiful lakes or lochs, as Loch Lomond,

Loch

Loch Fyn, &c. The Presbyterian religion is established, and others are tolerated. Government and trade are the same as in England; the two kingdoms being united. Edinburgh, the capital, contains 90,000 inhabitants. On the northern and western parts of Scotland, lie several clusters of islands, called the Orkney, the Shetland isles, and the Hebrides.

Scotland was anciently called Caledonia, and boasts great antiquity. The inhabitants had severe contests with the Romans, who were never able to subdue them. On the departure of the Romans, the natives were continually engaged, for several centuries, in contests with their southern neighbours. At length the cause of these wars ceased, by James VI, of Scotland, becoming heir to the crown of England in 1603; and the two kingdoms were united in 1705. Since that time the happiness of Great Britain has greatly increased.

IRELAND.

Ireland is an island. It has the Irish sea on the east; and the Atlantic ocean on all its other sides. Its length is 285 miles, and its breadth 160; and contains 3,000,000 of inhabitants. Its soil is extremely fertile. Its chief rivers are the Shannon, the Liffy, the Boyn, the Barrow, and the Noire, and it has also several fine lakes. Ireland is famous for its linen, beef, and butter. The Protestant religion is established; but all others are tolerated; and two thirds of the inhabitants

habitants are Roman Catholics. Dublin, the capital, is a beautiful city, and contains 200,000 inhabitants.

Ireland was anciently divided into a number of petty kingdoms. In 1172, Henry II, of England, taking advantage of the diſſentions of the native princes, conquered Ireland; and it has ever ſince been annexed to the crown of England; and an union took place in 1800. The preſent inhabitants of Ireland conſiſt of three diſtinct claſſes of people:—the old Iriſh, who habit the interior or weſtern parts; the deſcendants of the Engliſh, who inhabit Dublin, and the coaſt, facing England; and the deſcendants of the Scots, who dwell in the northern parts. The Iriſh, Scots, and Engliſh nations are repreſented in one parliament: and the three kingdoms are ſtiled, The United kingdoms of Great Britain and Ireland.

UNITED PROVINCES; NOW THE KINGDOM OF BELGIUM.

The United Provinces are ſeven: Holland, Zealand, Utrecht, Guelderland, Overwyſel, Groningen, and Frieſland. They are bounded northweſt by the German ocean; ſouth by France; and by Germany on the eaſt. Though the extent of this country be ſmall, it is exceedingly well peopled and rich; and is ranked among the firſt powers in Europe. The length is 150 miles, and the breadth nearly the ſame; containing about 2,000,000 of inhabitants. Its natural

natural productions are few; but the trade and manufactures are very extensive. The rivers are the Rhine, the Meaſe, the Scheldt, and the Vetch. The citizens are of all religions; but the majority are Presbyterians. Amſterdam, reckoned the capital of the United Provinces, is a very fine and rich city, containing 214,000 people.

Theſe provinces were originally an aſſemblage of ſeveral lordſhips, dependent upon the king of Spain; from whoſe yoke they withdrew themſelves on account of the tyranny of the government, during the reign of Philip II. in the year 1579. After a tedious war, Spain acknowledged their independence in 1609. They at firſt eſtabliſhed a republican government, nd made the executive power hereditary in the family of the Prince of Orange. But after the country was conquered by the French, in 1794, they depoſed and baniſhed the Stadtholder, and new modelled their conſtitution; which has been again changed, and is now a monarchy. Louis Bonaparte the firſt king.

NETHERLANDS.

The Netherlands, or Flanders, are ſituated between France and Germany, and the United Provinces. They are divided as follows:—1. Flanders, belonging to the Dutch, Auſtrians, and French. 2. Artois, famous for tapeſtry. 3. Hainault. 4. Namur. 5. Luxemburgh. 6. Limburgh. 7. Antwerp. 8. Michlinall: theſe

these belong to Austria. 9. Brabant, subject to the Dutch and Austrians. 10. Cambray, subject to France. The inhabitants are called Flemings; and are, in general, rigid Roman Catholics. They manufacture fine lawns, cambrics, lace and tapestry. It is a very fertile country. It is about 100 miles square; and contains 2,000,000 of inhabitants. Bruffels is the chief city, containing 100,000 people.

Flanders, originally the country of the ancient Belgæ, was conquered by Julius Cæsar forty seven years before Christ; passed into the hands of France, A. D. 412; and was governed by its earls, subject to that crown, from 864 to 1369. By marriage it then came into the house of Austria. It has frequently been the seat of European wars. It was conquered by the French in 1793, and is now united to that empire.

GERMANY.

Germany is bounded on the north by the German ocean, Denmark and the Baltic; on the south by the Alps and Switzerland; having Poland, Hungary, and Turkey on the east: and the territories of France and the Netherlands on the west: being 600 miles long, and 500 broad. It is said the number of inhabitants are 24,000,000. It is divided into nine districts, which are called the nine circles of the empire. There names are:—1. Upper Saxony. 2. Lower Saxony. 3. Westphalia. 4. Upper Rhine. 5. Lower Rhine. 6. Franconia. 7. Austria. 8. Bavaria. 9. Suabia. The

The emperor is head, but not master of the empire; for he can do but little without the consent of the electors, princes, and imperial free cities; which together from what is called the Diet of the empire, which assembles in the town of Ratisbon. There are nine electors; which, are, in order, the elector of Mentz, Triers, Cologne, Bohemia, Bavaria, Saxony, Brandenburgh, Palatine, and Hanover. In these are vested the right of electing emperors of Germany; for the empire is not hereditary. The electors are all sovereign princes. The elector of Bohemia is king of Bohemia, and his capital town is Prague: the capital of the elector of Bavaria is Munich; the elector of Saxony is the most considerable of all the electors, and his electorate is the finest; Dresden is the capital: the elector of Brandenburg is also king of Prussia: the chief towns of the elector of Palatine are Manheim and Dusseldorp: the elector of Hanover is the king of England.

The soil of Germany is not so fertile as that of France or Italy; but the country produces Rhenish and Moselle wines; abounds in metals and minerals; and is remarkable for the variety of its manufactures. It was in Germany the reformation began; however, several of its princes are still Roman Catholics, the rest are Protestants; and it abounds with other religious sects. Germany is watered by the Danube, the largest river in Europe, the Rhine, the Maine, the Wesel, the Elbe, and the Oder. Vienna is the

the capital of the whole empire, and contains 600,000 inhabitants.

Antient Germany extended over one third of Europe.—Charlemagne was the founder of the preſent German empire, in the year 800. His poſterity inherited the throne till 914, when Conrad, duke of Franconia, was elected emperor by the German princes. Since that time Germany has been conſidered as an elective monarchy. In 1438 the archduke of Auſtria was placed upon the throne; and his deſcendents have been continued in that dignity by election for upwards of 300 years. Francis II, the preſent emperor, beſides the empire, poſſeſſes by inheritance the kingdoms of Bohemia and Hungary, and the circle of Auſtria.

Great revolutions have lately taken place. The country on the left bank of the Rhine is ceded to France. Several princes have been depoſed; others have withdrawn from the Germanic body, and united by the ſtyle of the Confederation of the Rhine, and are under the protection of France. So that the old empire is overturned. The former emperor is ſtyled emperor of Auſtria.

HUNGARY.

Hungary is bounded by Poland on the north; by Turkey on the ſouth and eaſt; and by Auſtria and Moravia on the weſt. It is divided into —1. Upper Hungary. 2. Lower Hungary. 3. Tranſylvania. 4. Eſclavonia. The land is very fertile, and in ſome places produces the mo

moſt eſteemed grape in Europe. Presburgh, in upper Hungary, is the capital of the whole kingdom. Hungary has often been the ſeat of bloody wars between the Turks and Germans. The prevailing religion is the Roman Catholic: but other profeſſions are tolerated. Its inhabitants are about 3,000,000.

This kingdom is the ancient Pannonia. Julius Cæſar was the firſt Roman that attacked Hungary, and Tiberius ſubdued it. The Goths afterwards took it; and in the year 376 it became a prey to the Huns and Lombards. It was annexed to the empire of Germany under Charlemagne; but became an independent kingdom in 920. Formerly it was an aſſemblage of different ſtates; and the firſt who aſſumed the title of king was Stephen, in the year 997, diſtinguiſhed with the appellation of *Saint*, becauſe he firſt introduced Chriſtianity in this country. It belongs now to the houſe of Auſtria.

POLAND.

Poland is bounded by the Baltic and Ruſſia on the north; Turkey in Europe, and Hungary on the ſouth; Ruſſia on the eaſt; and Germany on the weſt. It is 700 miles in length, and 680 in breadth; containing 14,000,000 inhabitants. Its ſoil is fertile, but there is little trade carried on; and the peaſantry are in the moſt wretched ſtate of vaſſalage. The eſtabliſhed religion is Roman Catholic; but Proteſtants, Jews, and many other ſects are tolerated. The king is elected by

by the nobility, clergy, and gentry. The chief rivers are the Viſtula, the Neiſter, and the Boriſthenes. Warſaw is the capital city, and has 80,000 inhabitants.

Poland was anciently the country of the Vandals, who emigrated from it to invade the Roman empire. It was erected into a dutchy, of which Lechus was the firſt duke, A. D. 694. It became a kingdom in the year 1000. Otho III. emperor of Germany, conferred the title of king on Boleſlaus I. It was diſmembered by the emperor of Germany, the empreſs of Ruſſia, and the king of Pruſſia, who, by a partition treaty, ſeized the moſt valuable territories in 1772. In 1792 a new conſtitution was formed, whereby liberty was granted to the people: but the empreſs of Ruſſia tyrannically invaded them with her troops, and obliged them to return to their old form of government. A new partition of the kingdom afterwards took place; and Staniſlaus Auguſtus, the laſt king was dethroned. The French have ſince ſeized part of the country, and erected ſeveral ſeparate governments.

PRUSSIA.

The kingdom of Pruſſia was formerly a dutchy of Poland, which bounds it to the ſouth, eaſt, and weſt; and it has the Baltic on the north. It is 160 miles long, and 112 broad; containing 1,000,000 of inhabitants. The air is wholeſome, and the ſoil fruitful. Pregal, Viſtula, Memel, and the Elbe, are the chief rivers. Its government is an abſolute monarchy. The

Proteſtant

Proteſtant religion is eſtabliſhed, though all others are tolerated. Koningſburgh, the capital has 56,000 inhabitants, and has a conſiderable trade. The king of Pruſſia had alſo territories, in Germany, in Switzerland, in the Netherlands, and in Poland: ſo that he was a very powerful prince; but entering into war with France, he loſt great part of his territories, and is now in a degraded ſtate. Berlin contains 126,000 inhabitants. Frederic IV, the reigning prince, was born in 1770.

Pruſſia was anciently inhabited by an idolatrous and cruel people called the Venedi. The barbarity and ravages they were continually making upon their neighbours, obliged Conrad, duke of Maſovia, about the middle of the thirteenth century, to call to his aſſiſtance the knights of the Teutonic order, who were juſt then returned from the Holy Land. They attacked theſe people with ſucceſs, and after a bloody war of fifty years, reduced them to obedience, and obliged them to embrace Chriſtianity. They maintained their conqueſt till 1525, when Albert, Margrave of Bradenburg, their laſt grand maſter, having made himſelf maſter of all Pruſſia, ceded the weſtern part to the king of Poland; and was acknowledged duke of the eaſtern part; but to be held as a fief of that kingdom. In 1701, Frederic, ſon of Frederic William the Great, raiſed the dutchy of Pruſſia to a kingdom; and on January 11, 1701, in a ſolemn aſſembly of the ſtates of the kingdom, placed the crown with his own hands upon his

head. Soon after which he was acknowledged to be king of Pruſſia by all the European powers. The prince who at preſent fills the throne is the fourth king.

SWITZERLAND.

Switzerland is a ſmall romantic country lying upon the Alps, between France, and Germany, and Italy; and is the higheſt ſpot of ground in Europe. It is 260 miles in length, and 100 in breadth; and contains, 2,000,000 of inhabitants. Switzerland is a confederacy of thirteen cantons, viz. Zurich, Bern, Baſil, Shauffhauſen, Lucern, Friburgh, Solothurn, Switz, Urr, Underwald, Zug, Glaries, and Appenzal. Of theſe cantons, ſeven are Roman Catholic, and ſix Proteſtant. Every canton forms within itſelf a little republic. But when any controverſy ariſes that may effect the whole confederacy, it is referred to the general diet, which conſiſts of two deputies from each canton. Bern and Zurich are the principal cities. The Rhine, the Aar, and the Rhone, are the chief rivers, and it contains ſeveral lakes. The country not only yields good wine, fiſh, wool, flax, horſes, ſheep, deer, &c. with all the neceſſaries of human life; but likewiſe exports an abundance of many valuable commodities, ſuch as flax, linen, crape, hempen cloth, drugs, &c. On the frontiers of Switzerland are ſeveral ſmall republics, which are called their allies.

The old inhabitants of this country were called

ed Helvetii. They were defeated by Julius Cæsar, fifty-seven years before Christ; and the territory remained subject to the Romans till it was conquered by the German emigrants, A. D. 395, who were expelled by Clovis king of France, in 496. It underwent another revolution in 888, being made part of the kingdom of Burgundy. In 1032 it was given by the last king of Burgundy to Conrad II, emperor of Germany. From which time it was held as part of the empire, till the year 1307, when a very singular revolt delivered the Swiss cantons from the yoke. The independency of the several states of this country, now called the Thirteen Cantons, under a republican form of government, took place immediately. Which was made perpetual by a league among themselves, in the year 1315; and confirmed by treaty with the other powers of Europe in 1649.

The men, whoever they were, who roused and incited their fellow citizens to throw off the Austrian yoke, deserve to be regarded as patriots; having been undoubtedly actuated by that principle so dear to every generous heart, the spirit of independence.

"Who with the gen'rous rustics sat,
"On Uri's rock in close divan,
"And wing'd that arrow sure as fate,
"Which ascertain'd the rights of man,"

A new revolution, by the arms of France, took place in 1797: and the government is now unsettled and dependent.

FRANCE.

FRANCE.

France is the fineſt country in Europe, perhaps in the world. It abounds in every thing that can render it agreeable. Its air is temperate, and ſo very healthy, eſpecially in the ſouthern parts, that no part of Europe is equal to it. On the northward it is bounded by the Engliſh channel; ſouth by the Pyrenean hills, and the Mediterranean ſea; eaſt, by Italy, Switzerland, and Germany; and weſt by the Atlantic ocean. It is 600 miles long, and 500 broad; and has 24,000,000 of inhabitants. Paris is the capital of the whole nation, and is a moſt magnificent city; the number of its inhabitants are 700,000. From France comes our Claret, Burgundy, and Champaign wines, and Nantz brandy. And it produces corn, oil, and fruits; and is famous for its manufactures of ſilk, gold and ſilver ſtuffs, and lace. The principal rivers are the Rhone, the Soanne, the Garronne, the Loire, and the Seine, which laſt runs through Paris.

France was originally the country of the ancient Gauls, who once took Rome; but were afterwards conquered by the Romans, twenty-five years before Chriſt. In the fifth century it was overrun by the northern barbarians; and the Francs, a German nation, laid the foundation of the preſent kingdom, under Clovis, about the year 481. The poſterity of Clovis ſat on the throne 270 years. Pepin, founder of the Carlovignian race, then ſeized the kingdom.

In

In 987, Hugh Capet, the moſt powerful nobleman in France, aſcended the throne. This third line of the kings of France, continued firſt in the houſe of Valois, and then in the houſe of Bourbon. France was conquered by Henry V, of England; and he was declared heir to the crown in 1420. In thirty years after this, however, the crown of England loſt all its poſſeſſions in France, except Calais; and Calais was alſo loſt in the year 1556.—This powerful empire was, till lately, an abſolute monarchy. But in July, 1798, a revolution took place, whereby the monarchy became limited: and on the 10th of Auguſt, 1792, another revolution was effected, in which Louis XVI. was depoſed and beheaded, and France declared to be a republic. On this account a coalition was formed againſt her by the moſt powerful nations of Europe: after a furious war of eight years, France was victorious, and greatly enlarged her territory. After ſeveral changes of her conſtitution, the government became an imperial monarchy, and Bonaparte the firſt emperor. He has ſince been engaged in bloody wars with England; but great part of the reſt of Europe is ſubject to his power and influence.

SPAIN.

Spain has the bay of Biſcay and France on the north; the Straits of Gibraltar on the ſouth; the Mediterranean on the eaſt; and Portugal and the Atlantic on the weſt. It is 700 miles long,

long, and 500 broad; containing 9,000,000 of inhabitants. The ſoil is extremely fertile, but badly cultivated. Its rivers are the Duero, the Tagus, the Ebero, and the Tinto. The government is an abſolute monarchy; and the only religion tolerated is the Roman Catholic. Its commerce conſiſts in ſilk, wool copper, and hardware; but chiefly gold and ſilver, from the American mines. Madrid is the capital city, containing 100,000 inhabitants. The town and fort of Gibraltar is in Spain, but have long been poſſeſſed by the Engliſh.

The firſt inhabitants of Spain were the Celtæ, a people of Gaul. After them the Phœnicians poſſeſſed themſelves of the country. After that the Grecians: next the Carthagenians. About 156 years before Chriſt it became ſubject to the Romans, who held it 400 years. The Goths then took poſſeſſion of it: they, in their turn, were haraſſed by the Moors, who invaded the kingdom. A ſeries of civil wars enſued; and the country was divided into ſeveral kingdoms: which were at length united under Charles V. in the beginning of the 16th century, and the Moors finally expelled. In 1701 the Auſtrian line of kings became extinct, and Philip V, of the Bourbon family, aſcended the throne. Charles IV. born 1748, by French intrigue, reſigned his crown in favour of Bonaparte, who made his brother Joſeph king; but the people, in a bloody conteſt, are aſſerting their independence, and refuſe to be ſubject to France.

PORTUGAL.

PORTUGAL.

Portugal is to the weſt of Spain, and lies on the Atlantic ocean. It is 300 miles long and 100 broad; and contains 2,000,000 of inhabitants. The Roman Catholic religion, is practiſed here in its greateſt degree of ſplendor and ſuperſtition; and no other is tolerated. Its government is an abſolute monarchy. Its ſoil is not ſo fertile as that of Spain. The people carry on an extenſive trade with moſt parts of the world, in Port wine, ſalt and fruits; and eſpecially in the productions of Brazil. Lisbon, at the mouth of the Tagus, is the capital. It is an extenſive, populous and wealthy city; built, like old Rome, on ſeven little hills. It has 160,000 inhabitants.

Portugal was anciently called Luſitania, and inhabited by tribe of wandering and unknown people, till it became ſubject to the Carthagenians and Phœnicians, who were diſpoſſeſſed by the Romans, 240 years before Chriſt. In the fifth century it fell under the yoke of the Swevi and Vandals; who were driven out by the Goths of Spain, in the year 589. But when the Moors of Africa made themſelves maſters of the greateſt part of Spain, in the beginning of the 8th century, they penetrated into Luſitania; and there eſtabliſhed governors, who made themſelves kings. After many fruitleſs attempts of the kings of Leon on the part of Spain, Alonzo V, king of Caſtile and Leon, carried here his victorious arms about 1088. But in 1640 the people

people rebelled, and elected for their king, the duke of Braganza, who took the name of John IV. It has ever since remained in his family independent of Spain. Maria Frances Isabella is the present sovereign, born Dec. 17, 1734; and her son regent. Portugal being in 1808, invaded by the French, the government retired to the colony of Brasil in South America.

ITALY.

Italy is a large peninsula, shaped like a boot and spur. It is bounded towards the north by Switzerland and the Alps; on the east by the Gulf of Venice; and on the south and west by the Mediterranean. It is 750 miles long, and from 100 to 400 broad; containing 15,000,000 of inhabitants. In Italy the religion is the Roman Catholic. The country is extremely beautiful; the air is generally very pure, mild, and healthy, and the soil fertile; producing all kinds of grain, fruit in the highest perfection, and carries on a considerable trade in wine, oil, silk, velvet and fruits. Before the present war it was divided into twelve states, independent of each other, viz. the republics of Venice, Genoa, and Lucca; the dukedoms of Mantua, Milan, Modena, Parma, Savoy, and Tuscany; the principalities of Piedmont; the kingdom of Naples, and the Ecclesiastical State. But being for a considerable time the seat of war between the French, Austrians, and Russians, it was several times conquered and reconquered. At

the

the peace of 1801, the French being masters of the country, great changes were made in its government. Genoa, and the country around, was erected in the Ligurian republic, but is now united to France. Mantua, Milan, Modena, and other parts of the north of Italy were constituted into the Italian republic; but now filled the kingdom of Italy. Bonaparte is the first king. Tuscany he erected into a kingdom called Etruria, and given to Anthony, second son of the king of Spain; succeeded by his queen; but Bonaparte has again deposed her. Piedmont is united with France.

Naples. It is not without reason that this kingdom is termed a paradise; as it abounds with all kinds of grain, fruit, flax, oil, and wine, in the highest perfection. The city of Naples is one of the finest in the world, and contains 350,000 inhabitants. Bonaparte deposed the late king Ferdinand IV. placed Joseph Bonaparte on the throne, and has now given it to one of his generals.

Ecclesiastical State. Rome, its capital, stands upon the river Tiber, and contains 143,000 inhabitants. The country about Rome is pleasant, but thinly peopled; and has little trade. The Pope is the Sovereign. He was once deposed, and afterwards restored by the French.

Italy was probably first peopled from Greece. The æra of the foundation of Rome was 753 years before the birth of Christ. The founder was Romulus the first king. This city, by temperance, valour, and magnanimity, rose to be

miſtreſs of the world: it fell by luxury, effeminacy, and debauchery. At the commencement of the Chriſtian æra Rome was fifty miles in circumference, and contained 4,000,000 inhabitants. In the year 365 the empire was divided in two, called the Eaſtern and the Weſtern. In the fifth century the weſtern empire was overturned by the northern nations. Rome was taken and plundered; the fineſt monuments of art deſtroyed; and many thouſands of every age and ſex periſhed. Italy, as well as other parts of the empire, was parcelled out among the invaders. In 606, the Pope or Biſhop of Rome became a temporal prince; and his ſpiritual authority gradually extended over the greateſt part of the ancient Roman empire. So that Rome reigned over the earth, firſt by temporal, and then by ſpiritual authority. In the 16th century, however, many nations withdrew their ſubjection.—The eaſtern empire, the capital of which was Conſtantinople, continued to exiſt till the year 1453, when it was ſubdued by the Turks, a barbarous nation from the northern parts of Aſia.—Italy has been overturned of late by Bonaparte, as above ſtated, and is now ſubject to him.

TURKEY.

Turkey, like Ruſſia, has extenſive dominions both in Europe and Aſia. In Europe this empire is bounded by the Ruſſian, Auſtrian, and Poliſh territories; in Aſia by Pruſſia, Perſia, and Arabia.

Arabia. In Africa it has Egypt, and claims dominion over the Barbary ſtates. In general, this extenſive empire is advantageouſly ſituated, having a temperate climate and fruitful ſoil; producing excellent wool, corn, wine, oil, fruit, coffee, rhubarb, myrrh, and other odoriferous plants and drugs in the greateſt variety and abundance. But the Turks are too ſlothful and indolent to apply themſelves to manufactures; theſe being managed by the Chriſtian ſubjects, who annually export from thence the fineſt carpets, beſides great quantities of cotton, leather, raw ſilk, &c. Mahometaniſm is their religion; and the government is a deſpotic monarcy, abſolute in the extreme. Conſtantinople is the capital of the dominions of the Grand Signior, Emperor or Sultan of Turkey. It is a ſplended city, and contains 700,000 inhabitants. This empire extends over the countries where Athens, Sparta, Babylon, and Jeruſalem once flouriſhed.

The Ottoman empire, or ſovereignty of the Turkiſh empire, was founded at Conſtantinople by Othman, or Oſmond I, upon the total deſtruction of the Eaſtern Roman empire, in 1453. He was ſucceeded by a race of the moſt warlike princes that are recorded in hiſtory.—But the empire is now in a weak and declining ſtate.

EUROPEAN ISLANDS.

The principal European iſlands beſides Great Britain and Ireland, are Man, Angleſea, the Scilly

Scilly Islands, Wight, Jersey, and Guernsey belonging to England; Belisle and Corsica France; Majorca, Minorca, Yvica, and Cadiz to Spain, the latter being its chief sea port Sardinia to its own king; the fruitful island Sicily belongs to the king of Naples; Malta its own knights; Corfu, Cephalonia, Cythera Candia, Negropont, Lemnos, Scio or Chi Cyprus, Zant, and Rhodes, belonging most to Turkey.

ASIA.

DESCRIPTION.

Asia is bounded by the frozen ocean on t north; south by the Indian ocean; east by t Pacific ocean; and west by the Red, Mediterranean, and Black seas. It is 4700 miles length, and 4300 in breadth.

The principal rivers in Asia are the Tig and Euphrates, between Arabia and Persia, a the Indus and Ganges in India. The highe mountains are, Ararat near the Caspian se on which Noah's ark rested; Horeb and Sin in Arabia; Lebanon, in Judea; mount Tau rus, running from east to west through all Asia Ima, in Tartary; and the lofty Caucasus, be tween Tartary and the Mogul's empire.

HISTORY.

In Asia man was created, and here the terrestrial paradise was situated. After the flood mankind


ASIA
Northern Ocean
SIBERIA
Kamtschatka
RUSSIA IN ASIA
Pr. OF EUROPE
Astrachan
Calmuks
Manchew
CHINESE TARTARY
Caspian Sea
Japan I.
Turky in Asia
PERSIA
TIBET
Pekin
Nankin
CHINA
Tropic of Cancer
Mecca
Bay of Bengal
Manila
Ladrone Islands
Pr. OF AFRICA
Equinoctial line
INDIAN OR EASTERN OCEAN
Celebes
Gilolo
New Guinea
Sumatra
Java
40 Longitude 60 East 80 from 100 London 120 140

mankind ſettled on the plains of Babylon. The ſciences were firſt cultivated in Chaldea; from whence they paſſed to India and Egypt, thence to Greece, and afterwards to Rome. The Phenicians and Tyrians, on the eaſtern ſhore of the Mediterranean, were early acquainted with navigation.—In the earlieſt ages this vaſt territory was governed by the Aſſyrians; then followed the Chaldeans, Perſians, and Greeks. Upon the extinction of theſe empires, the Romans carried their arms beyond the Ganges; till at length the Mahometans, or as they are uſually called, Saracens, ſpread their devaſtations widely over this continent, deſtroying all its ancient ſplendor, and rendering the moſt populous countries in Aſia wild and uncultivated deſerts.

RELIGION.

Various are the religions profeſſed in Aſia. Chriſtianity, though planted here with wonderful ſucceſs by the apoſtles and primitive fathers, has ſuffered an almoſt total eclipſe by Mahometaniſm; which has overſpread Turkey, Arabia, Perſia, part of Tartary, and part of India.—The other parts of Tartary, India, China, Japan, and the Aſiatic iſlands, are involved in the groſſeſt idolatry, under different forms.

Having already ſpoken of Ruſſia and Turkey in Aſia, we ſhall now briefly mention its other empires and kingdoms.

CHINA.

China is a vast empire, and the most eastern part of Asia, lying on the Eastern or Pacific ocean. It is about 2000 miles long, and 1600 broad. It is said to contain 4400 walled cities. The chief is Pekin the capital, Nankin, and Canton the principal sea port. The great wall which separates China from Tartary is 1500 miles in length, 30 feet broad, and 30 high. It was built 1500 years ago, and subsists nearly entire to this day. The tea plant is almost peculiar to this country; of which they raise enough to supply the whole world. They also export silks, cottons, and China wares; and their trade is open to all nations. China is said to be the most populous country in the world, containing 333,000,000 of inhabitants.

This empire is reported to have been founded by Fohi, who is said to be the Noah of the Bible, about 2240 years before Christ. It is now governed by emperors of the dynasty of the Manchew Tartars, who conquered it, A. D. 1645.

TARTARY.

Tartary, formerly Scythia, is a vast region bounded by the Chinese, Russian, Persian, and Mogul empires. The whole is a barbarous and unknown country. Its inhabitants are a fierce people, and wander about without any fixed habitation; having neither agriculture, manufactures, nor trade.

INDIA.

The East Indies, is an extensive country. A chain of mountains on the north divides it from China, Tartary, and Persia; and the rest is surrounded by the sea. This country is rich, fertile, and populous, containing upwards of 100,000,000 inhabitants. The natives trade in spices, rice, sugar, gold, diamonds, emeralds, and other precious stones; and in manufactures of calicoes, muslin, silk, &c. The commerce of this country has always been sought after by trading nations.

The original inhabitants of India are called Hindus or Gentoos. They are a quiet people, and have always applied themselves to commerce, manufactures, and agriculture, and have never invaded their neighbours; but they have often suffered by the ambition and avarice of other nations. Alexander the Great was the first that invaded this country. The Romans carried their arms beyond the Ganges. It has often been plundered by the Mahometan princes of Asia. And lastly, they have suffered by the English, French, Dutch, Swedes, Danes, and Portuguese, who have made settlements among them. There are thirty millions of Indians, under the British government.

PERSIA.

Persia is a large country, bounded by Russia, Tartary, India, Turkey, and Arabia. The Persians

Persians excel in manufacturing carpets, silk, and leather, and in dying. But they are in a great measure unacquainted with agriculture, and have but little trade.

The Persian empire was founded by Nimrod, and is the most ancient in the world. It was overturned by the Assyrians of Babylon. The modern Persian empire was founded by Cyrus, on the ruins of the old Assyrian monarchy, 536 years before Christ. It continued till it was overthrown by Alexander the Great, 331 years B. C. It has undergone several revolutions since; but none in favour of the people, who have always been oppressed by a despotic government.

ARABIA.

Arabia is contiguous to Turkey in Asia, lying between the Persian gulf and the Red sea. It is divided into three parts:—1. Arabia the Rocky. 2. Arabia the Desert. 3. Arabia the Happy. It was through the deserts of this country the Israelites marched when they left Egypt. The Arabs are mostly descended from Ishmael. They are a bold, hardy, independent race, who have never been conquered, but have always harassed and plundered the neighbouring nations, and travellers through their country. Mahomet was their countryman, and they follow his religion.

ASIATIC ISLANDS.

The principal Asiatic islands are the cluster called the empire of Japan, about 150 miles

AFRICA
Tropic of Cancer
Spain
Str. of Gibralter
Mediterra
Madeira
Canary Is
ATLANTIC
BARBARY
Morocco
Tripoli
SARA or the DESERT
ARABIA
Mecca
Egypt
Nile R
Cape Verd
NEGROLAND
Gambia R
GUINEA
Benin
Abissina
Adel
Ajan
EASTERN
OCEAN
Equinoctial Line
Loango
Congo
Bongucla
Zanguebar
Monomatapa
Ascention
St Helena
Madagascar
I. of Bourbon
Tropic of Capricorn
Hottentots
Cape of Good Hope
SOUTH AMERICA
Long West 40 from 20 London Long 20 East 40 from 60 London 80

east of China. They are under their own prince, and very little known. The Philippines are several hundred in number, and belong to Spain. The Moluccas, or Spice islands, the Banda, or Nutmeg islands, and Ceylon, belong to the Dutch. The Sunda isles, Java, Sumatra, Borneo, &c. famous for their gold.

AFRICA.

Description.

Africa is a peninsula, joined to Asia by a neck of land called the isthmus of Suez. It is bounded on the north by the Mediterranean; on the south by the Southern ocean; on the east by the Red sea and the Indian ocean; and on the west by the Atlantic. It is 4000 miles in length, and 3000 in breadth. The principal mountains are the Lybian Mount, between Raares and Egypt; Mount Atlas, between Barbary and Bilodulgered, which gives name to the neighbouring ocean, called the Atlantic; the Mountain of the Moon, in Ethiopia; and the Peek of Teneriffe, in the Canary islands. The most famous rivers in Africa are, the Nile, in Nubia and Egypt; and the river Senegal, anciently called Niger, running through all Negroland into the Atlantic.

History.

Africa once contained several powerful and commercial states. The kingdoms of Egypt and Ethiopia, and the republic of Carthage were

were much celebrated. After the conquest of Carthage by the Romans, the country was plundered by their governors. It was afterwards overrun by the Vandals, and then fell under the power of the Saracens and Turks. By these successive conquests Africa has lost its ancient splendor, and is now sunk in the grossest barbarity.

Very little of Africa is known; we are acquainted with the sea coast only. The soil in some places is extremely fertile, but perfectly barren in others.

The despotic governments both of Africa and of the empires of Asia, render the inhabitants miserable, and prevent them from reaping those advantages which might arise from the fertility of the soil, or their convenient situation for trade. They are, in general, in a state of ignorance, being unacquainted with polite literature, the sciences, or true religion. Though some sublime poetry, and treaties on philosophy and rhetoric, have been written in those countries.

EGYPT.

Egypt is 600 miles long, and 250 broad. It has the Mediterranean on the north; Ethiopia on the south; the Red sea on the east; and the Desert on the west. The soil is fertile, occasioned by the overflowing of the Nile; but the climate is hot. Egypt trades in linen, rice, balm, cassia, &c. It is subject to the Grand Signior. The religion

gion is Mahometanism, and a sort of Christianity. In this country are the famous pyramids, supposed to be built by the children of Israel when in bondage. Grand Cairo is the capital city.

Misraim, the grandson of Noah, founded the kingdom of Egypt. It is one of the most ancient kingdoms, and was long famous among the nations. It was conquered by the Persians 520 years before Christ. It then fell under the power of Alexander the Great. Afterwards it was subdued by the Romans; and is now under the power of the Turks.

ETHIOPIA.

Ethiopia, or Abyssinia, lies to the north of Egypt, and is governed by a king called Prester John, who is absolute both in civil and ecclesiastical affairs. The religion is a mixture of Christianity and Judaism. The country is said to be populous.

BARBARY.

Barbary, or the coast of Barbary, all along the mountains of Atlas, quite to Egypt, belongs to the emperor of Morocco, and to the kingdoms of Algiers, Barca, and Tunis, near which last stood the famous city of Carthage. They are Mahometans; nominally subject to the grand Seignior; and the government is a most absolute tyranny. These states are best known by their piratical seizures of the ships of other nations.

NEGROLAND.

NEGROLAND.

Negroland, or Guinea, lies on the Atlantic.—Here the Dutch, English, and French trade for gold, ivory, and slaves. The Portuguese have settlements both on the east and west coasts. The natives are Pagans, and governed by petty kings.

HOTTENTOTS.

The Hottentots possess the southern part of Africa. It is said they are a sottish people, having little more of humanity than the form. At the cape of Good Hope, which is the southernmost point of Africa, the British have a fort and factory.

AFRICAN ISLANDS.

The principal African islands are, Madagascar, Mauritius, Bourbon, St. Helena, Cape de Verd islands, the Canaries, and the Madeiras, The two last famous for their wines.

NEW DISCOVERIES.

Several groups of islands have been discovered by the Russians between the eastern coast of Kamschatka and the western coast of America. The late celebrated captain Cook made important discoveries in the South sea: the principal are the Otaheite, the Society islands, the Friendly islands, New Zealand, the New Hebrides, New Caledonia, New Ireland, New Holland, which last is larger than all Europe; New Guinea, and the Sandwich isles.

Of the Varieties among Mankind.

The Varieties among the human race, with respect to colour and features, have occasioned learned disquisitions among philosophers, about the origin and cause of such difference. We do not purpose here to enter upon the subject; but only to enumerate those that are at present generally known.—1. The native Indians of America are of a copper colour, have black, thick, straight hair, high cheek bones, and small eyes. 2. The negroes of Africa are of a deep black colour, have short black hair like wool, flat noses, thick lips, and fine white teeth. The Moors or inhabitants of Barbary are also black, but have long hair. The Ethiopians are tawney. 3. The Gentoos, or natives of India, are of a slender shape, have black complexions, and long black hair. 4. The Chinese, especially towards the south, Japanese, some tribes of Tartars, and the inhabitants of the islands in the South sea, are of an olive complexion, and have black hair. The Persians and Arabians in general are swarthy. 5. The inhabitants of the polar regions, comprehending the Laplanders, Greenlanders, the people of Kamschatka, and the northern Tartars, are of a dark grey colour, short stature, thick lips, short noses, high cheek bones, and broad visage. 6. The Europeans, especially, the inhabitants of Britain and Ireland, and their descendants in America, are of a beautiful fair complexion.

A TABLE

Of the Bearing and Distance (in Geographical miles) of the principal Cities in the World from Philadelphia, with the length of their Longest Days, and their Latitude and Longitude from London.

NOTE—6 Geographical miles make 7 English miles.

Cities.	Countries.	Latitude. D. M.	Longitude. D. M.	Distance	Bearing in points of the Compass.	Lo. D. H. M.
Algiers,	Barbary,	36 49 N	2 12 E.	3644	E. by S. ¼ E.	14 34
Amsterdam,	Belgium,	52 22 N.	4 55 E.	3407	E. by N. nearly,	16 36
Bagdat,	Persia,	33 20 N.	43 46 E.	5743	E. by S. ½ E.	14 14
Berlin,	Prussia,	52 32 N.	13 26 E.	3740	E. by N. nearly,	16 38
Bridgetown,	Barbadoes,	13 5 N.	58 34 W.	1790	S. S. E. ½ E.	12 46
Cairo,	Egypt,	30 2 N.	31 18 E.	5268	E. by S. ¼ E. nearly,	13 56
Canton,	China,	23 7 N.	113 2 E.	8841	W. by S ¼ W. nearly,	13 24
Copenhagen,	Denmark,	55 40 N	12 35 E.	3673	E. N. E. ¼ E. nearly,	17 12
Constantinople	Turkey,	41 1 N.	28 53 E.	4751	E. nearly,	14 58
Dublin,	Ireland,	53 21 N.	6 6 W.	295[illegible]	E. N. E. ¼ E.	16 46
Edinburgh,	Scotland,	55 57 N.	3 12 W.	305[illegible]	E. N. E. ¼ E.	17 22
Georgetown,	Bermudas,	32 45 N.	63 35 W.	71[illegible]	S. E. by E.	14 9

Gibraltar,	Spain,	36	5 N.	5	22 W.	3810	E. by S. $\frac{1}{8}$ E.	14	28
Havanna,	Cuba,	23	11 N.	82	18 W.	1068	S. by W. $\frac{5}{8}$ W.	13	5
Jerusalem,	Holy Land,	31	35 N.	35	30 E.	5393	E. by S. $\frac{1}{2}$ E.	14	6
Kingston,	Jamaica,	13	15 N.	76	33 W.	1315	S. $\frac{1}{8}$ W.	13	6
Lima,	Peru,	12	1 N.	76	49 W.	3120	S. $\frac{1}{8}$ W.	12	42
Lisbon,	Portugal,	38	42 N	9	9 W.	3067	E. by S. $\frac{1}{8}$ W.	14	42
London,	England,	51	31 N.	0	0	3222	E. N. N. $\frac{7}{8}$ E.	16	26
Madrid,	Spain,	40	25 N.	3	25 W.	3288	E. near y,	14	54
Mexico,	Mexico,	19	54 N.	100	5 W.	1767	S. W. $\frac{1}{8}$ W.	13	12
Petersburgh,	Russia,	59	56 N.	39	19 E.	4257	E. N. E. $\frac{3}{4}$ E.	18	24
Paris,	France,	48	50 N.	2	20 E.	3377	E by N.	16	0
Rome,	Italy,	41	54 N.	12	29 E.	3978	E. by N. $\frac{3}{8}$ E.	15	4
Stockholm,	Sweden,	59	20 N.	18	3 E.	3806	E. N. E. $\frac{1}{2}$ E. E.	18	16
St. Eustatia,	St. Eustatia,	17	29 N.	36	30 W.	1507	S. E. E. $\frac{1}{2}$ E.	13	4
Vienna,	Germany,	48	42 N.	16	22 E.	3971	E. by E. $\frac{1}{2}$ E.	15	52
Venice,	Italy,	45	26 N.	12	4 E.	3954	E. by N. $\frac{1}{2}$ E. nearly,	15	30
Warsaw,	Poland,	52	14 N.	21	0 E.	4065	E. by N. $\frac{1}{2}$ E.	16	32
Nova Zembla,	Froz Zone,					4570	N E. by E. $\frac{1}{2}$ E.	123	days.
North Cape,	Norway,	71	10 N.	25	57 E.	3765	N. E. by E. $\frac{1}{2}$ E.	77	

The Latitude and Longitude of the principal Cities in North America, from the Meridian of London.

Cities.	*State, or Province.*	*Latitude.* D.	M.		*Longitude.* D.	M.	
Annapolis	Maryland	39	0	N.	76	40	W.
Albany	New York	42	46	N.	73	47	W.
Boſton	Maſſachuſetts	42	25	N.	70	73	W.
Burlington	New Jerſey	40	8	N.	75	0	W.
Baltimore	Maryland	39	21	N.	76	40	W.
Charleſton	Sou. Carolina	32	45	N.	79	55	W.
Halifax	Nova Scotia	34	40	N.	65	15	W.
Louiſburgh	Cape Breton	45	43	N.	59	48	W.
New Orleans	Louiſiana	30	2	N.	89	53	W.
Newport	Rhode Iſland	41	35	N.	71	6	W.
New York	New York	40	43	N.	74	10	W.
New London	Connecticut	41	21	N.	72	13	W.
Portſmouth	N. Hampſhire	43	10	N.	70	20	W.
Philadelphia	Pennſylvania	39	57	N.	75	9	W.
Penſacola	Weſt Florida	30	22	N.	87	20	W.
Pittſburgh	Pennſylvania	30	27	N.	79	55	W.
Quebec	Canada	46	55	N.	69	46	W.
Richmond	Virginia	37	30	N.	77	45	W.
St. Auguſtine	Eaſt Florida	29	45	N.	81	12	W.
Savannah	Georgia	31	55	N.	80	56	W.
Williamſburg	Virginia	37	12	N.	76	48	W.
Waſhington	Diſ. of Colum.	38	53	N.	77	8	W.

SECTION

SECTION VI.

Of Natural Philosophy.

I. *Of the Properties of Matter, &c.*

PHILOSOPHERS say "that all bodies "consist of the same sort of matter or sub- "stance, and that all the diversity or differ- "ence that we observe among them arises "only from the various modifications and dif- "ferent connections of adhesion, of the same "primogenial particles of matter."——To all bodies belong *extension*, *divisibility*, *impenetrability*, *vis-inertiæ*, *attraction*, and *gravity*.

1. *Extension* is that property of a body by which it possesses or takes up some part of universal space, which place is called the place of the body—Or, extension is the size, bulk, or magnitude of a body, comprehended in the idea of its having length, breadth, and depth.

2. *Divisibility* is that property of bodies whereby they are capable of being divided into parts. There is no body, or particle of matter, how small soever, but is capable of being divided into two parts; these two into four; these four into eight; and so on for ever and ever. Matter, therefore, is infinitely divisible; at least it is so in a mental or mathematical sense; how far it is so actually is not easy to say; but this we know, that nature carries it to inconceivable lengths. For instance, what a prodigious space or sphere do the particles of light, issuing from the

flames of a candle, fill? or a grain of *assa-fœtida*, with odorous particles?

3. *Impenetrability* or *solidity*, is that quality or property of a body by which it excludes all others from the place itself possesses. It is impossible for two bodies to possess the same place at the same time. Hence the softest bodies are equally solid with the hardest. A piece of dough is as impenetrable as a diamond; and if put between two bodies, all the force in the universe could not bring them into contact. If you thrust your finger into it, the matter is not penetrated thereby, but the parts separated.

4. *Mobility* is that property which all bodies have of being moveable, or capable of changing their places or situations. This property of matter is evident to our senses.

5. The *vis inertiæ* or the *inactivity* of matter is that property of it by which it would continue in its state of motion or rest; or by which it resists the actions and impressions of all other motions, which tend to give it motion, or destroy its motion.

6. *Attraction* is a quality that we find all bodies endued with, in a greater or less degree. It is that property by which bodies and particles of matter mutually draw each other, and endeavour to come together.—In some instances, however, the particles of matter seem to *repel* each other, and instead of endeavouring to come together, exert a force to separate. But whether this *repulsion* be another

other property of matter, or that the particles are more attracted by bodies in a contrary direction, and therefore apparently repel each other, we know not.—Philosophers generally reckon four different kinds of attraction, viz: two great and general, *cohesion* and *gravitation*; and two small or particular, *magnetism* and *electricity*.

7. *Attraction* of *cohesion* is one of the grand agents of nature. By it the particles or parts of a firm and hard body are kept together. Destroy the attraction of cohesion, and the hardest bodies will become a *fluid* or *dust*. Hence, when metals are melted by fire, their fluidity is no more than a consequence of the attraction of cohesion having ceased to act. This surprising agent only acts powerfully when the particles of matter are in contact, or very near each other. There is an easy experiment for illustrating this power, by taking two pieces of lead, and planeing the surfaces which are to touch with the edge of a sharp penknife: Then let them be pressed together with a gentle turn of the hand, and they will cohere with an incredible force: Indeed the joint would be as strong as any other part, were it possible to polish the surface perfectly.

8. *Attraction* of *gravitation* is that power by which all bodies endeavour to accede to or approach each other. It differs from that of *cohesion* because it acts to an immense distance, and is evident between large bodies only. By this great agent of nature, the planets

ets are retained in their orbits: that is, by it the sun and planets mutually endeavour to come together: and by it is produced in bodies what is called their *gravity* or *weight*, which is no more than the mutual attraction between them and the earth, whereby they tend towards its centre. Gravity decreases as the square of the distance from the centre increases; that is, if a body of one pound weight on the earth's surface were elevated above the earth to twice the distance from its centre, it would then weigh ¼ lb. only; if to three times the distance, ⅑ lb. &c.—Should *gravitation* cease, then the matter of the earth would fly off in all directions, by means of the diurnal rotation, and the whole universe would become a chaos.——Hence, we see that the attraction of *cohesion* and *gravitation* are the principal agents in nature. The one keeps the parts of a body together, and gives it *firmness*, the other gives it *weight*.

9. *Attraction* of *magnetism* is that property of magnets or loadstones, by which they draw metals, such as *iron* and *steel*, towards them; and also to communicate the same virtues to those metals by rubbing: with that amazing and useful quality of *polarity* to needles or steel bars.

10. *Attraction* of *electricity* being more easily explained by experiment than abstract words, we therefore purposely omit a definition of it.

II. *Of*

II. *Of the Laws of Motion, &c.*

1. *Motion* is a continual and successive change of place.—*Celerity* or *velocity* is that affection of motion commonly called *swiftness* or *slowness*.—*Momentum*, or quantity of motion, is what is commonly called *force*; or it is all the power or force a moving body has to affect or strike an obstacle opposing it.—If two equal bodies move with *unequal velocity*, their forces or *momenta* will be in proportion to their velocities; and if the velocities be *equal*, but the quantity of matter in the bodies *unequal*, then their *momenta* will be proportional to their quantities of matter; lastly, if *unequal* bodies move with *unequal* velocities, then their *momenta* will be proportional to the *product* or *multiplication* of their quantities of matter and velocities respectively: thus, if one body strike an obstacle with 3 parts of matter, and 5 degrees of velocity, and another strike it with 4 parts of matter, and 7 degrees of velocity, then the *momenta* or *forces* of the respective strokes will be as 15 to 28.

2. Motion is either *absolute* or *relative*. For instance, suppose two ships, A and B, set sail together in the same straight line; but A sails 5 miles an hour, B 7. Here it is evident, that 5 and 7 miles an hour are their *absolute* velocities; but 2 miles an hour their *relative*: For B will appear to the passengers in A to be sailing at the rate of 2 miles an hour forward; but to those in the ship B, A will appear to be running

running backwards at the same rate. But if the two ships move with the same degree of velocity, then their *relative* velocity is nothing; and so neither ship will appear to the passengers to move at all. Hence it is that though the earth is continually revolving about its axis, all objects on its surface partakes of the same common motion, and appear not to move at all, but are relatively at rest.

3. The general *laws* of motion, that all bodies observe, are the following:——1. Every body will continue in its state of rest, or moving uniformly in a straight line, except it is compelled to change that state by forces impressed.—2. The change of motion is always proportionable to the moving force impressed, and is always made in the direction of the straight line in which that force is impressed.—3. Re-action is always equal and contrary to action; or, the action of two bodies upon each other are always equal, and in contrary directions.

4. The first law is founded on the *vis inertiæ* of matter, by which it is disposed to persevere in its state of motion or rest: Or, perhaps to speak more justly, matter has neither power nor disposition to change its state of motion or rest. And consequently, if a body be in motion, it will continue to move for ever, in the same direction or straight line, and with the same velocity, were it not resisted by obstacles, or compelled to change its direction by new impressed forces. Hence we see how the

the motions of the planets and comets remain undisturbed; and that only for the attraction of gravitation, which causes them to revolve about the sun, they would move for ever in a straight line with undiminished velocity*.—When a stone is thrown from the hand it would move at the same rate continually, in the direction it left the hand, only for the resistance of the air, which in time would stop it. And the force of gravity urging it constantly towards the centre of the earth, compels it to change its direction, and fall downwards.

5. The second law may be illustrated thus: Suppose a ship sails 40 miles directly south in a secret current, which in the same time, sets 30 miles directly west. Then, at the end of the time, the ship will not only be 40 miles to the southward, but also 30 miles to the westward of the port left. And the abso-

* Allowing that matter in itself is indifferent to motion or rest, yet the assertion of some philosophers, that a body put in motion will move for ever, if it meet with no resistance, is merely theory, for no facts can be brought to prove it. The limited experiments on a whirling table, or with any other machine, however useful in several mechanical operations, are very far from shewing what will be for ever; or ascertaining the impulse that acts in the system of the universe. Some active principle is necessary for the continuance, as well as the commencement of motion. Were the impressive force withdrawn, matter would cease to move.

"Some say that in the origin of things
The infant elements received a law
From which they swerve not since.....
But, how should matter occupy a charge,
Dull as it is, and satisfy a law,
So vast in its demands, unless compelled
To ceaseless service by a ceaseless force?"

lute

lute space passed over by this common motion, will be 50 miles between the south and west.

6. The third law is founded on reason and experience:—If you press the table with your hand, then your hand will be equally pressed by the table. When a horse draws a stone, the cord being equally stretched between both, acts equally upon both. Or if one push a boat from the shore, then the shore is as much pushed from the boat.——That *action* and *re-action* are equal on bodies striking or impinging on others is evident: for on this account brittle bodies, such as a *glass bottle*, &c. are as easily broken by striking hard bodies, as if the hard bodies had struck them.—Rowing swimming, flying, &c. depend on this principle: for *water* and *air*, though fluid bodies, give resistance to others which strike them, or re-act with an equal force in a contrary direction; and by this means impel the boat, the fish, the bird, in a direction contrary to that in which the oars, fins, and wings strike them.

7. The motion of a body falling by its gravity from a state of rest, is equally accelerated, and its velocity at all distances is proportional to the time of the fall. This is evident, because in equal particles of time, the body receives equal impulses from gravity, which generate equal increments of velocity: and therefore as they increase with, must be proportional to, the times.—The *spaces* passed through

through are as the square of the times; that is, as the products of multiplication of the times by themselves. Thus, a body in one second falls about 16 feet; in two seconds, 5 times that distance; in three seconds, 6 times; in four seconds, 16 times, &c.—Also the velocity of a falling body at any time, is such as would cause it to move through exactly twice the space of the fall, had it moved uniformly from the beginning with that velocity.——If a body be projected, or thrown directly upwards, gravity will in a short time destroy all its force, and compel it to turn, and fall downwards. And in the opposite point of ascent and descent, its velocity will be the same; because gravity acts always uniformly, and necessarily restores it the same velocity in the descent, that it destroyed in the ascent. Hence the reason why the velocity of the comets, in their ascent from and descents to the sun, in opposite points of their orbits is the same.——N. B. This theory holds good in free space only, or a non-resisting medium; and therefore does not altogether apply to falling bodies at the earth's surface, on account of the resistance of the air.

8. We have shewn that the momenta, or forces of moving bodies are proportional to the product of their velocities and quantities of matter. Consequently, when unequal bodies move with equal momenta, their velocities are inversely as their quantities of matter:

for instance, the momentum of a body of 100 pounds weight, moving 1 foot in a second, is equal to the momentum of a body of 1 lb. weight, moving 100 feet in a second.—From this it is evident, why the *recoil* of a musket does no injury. For though, on account of action and re-action being equal, the musket moves backward with the same momentum the bullet moves forward; yet the velocity of the bullet will perhaps be 200 times greater than the velocity of the musket, because the weight of the one is 200 times that of the other.

8. The *centre of gravity* of a body, is that point in it, about which all the parts do exactly balance each other. When the centre of gravity is supported, the body is kept from falling, because this point has a constant endeavour to descend to the centre of the earth. Therefore, when the centre of gravity is at liberty to descend, the whole body must also descend or fall, either by sliding, rolling, or tumbling.—The common centre of gravity of two bodies is in the straight line joining their respective centres of gravity; and if there be a third body, the centre of gravity of the three is in a straight line joining the centre of the third body, and the common centre of the other two; and so of a fifth, &c.—The common centre of gravity of two equal bodies is the middle point between them; but of unequal bodies, its distance from each is inversely as its quantity of matter. Thus, the com-

mon

mon centre of gravity of the earth and moon is 40 times nearer to the earth than to the moon; because the quantities of matter in the earth and moon, are as 40 to 1.

10. If two bodies, suppose chain shot, connected together, be caused to move round each other, their common centre of gravity will be their common centre of motion; that is, they will both move round their common centre of gravity. Whence it follows, that the earth and moon are both revolving about their common centre of gravity; and this point, and not the earth's centre, is that which the moon respects in her periodical revolutions round the earth. Moreover, it is this common centre of gravity that describes the *annual orbit* round the sun, and not the earth's centre, as is commonly said and thought.—In like manner, there is a common centre of gravity of the sun, and all the planets that circulate about him; and it is about this point, and not about the sun, that not only all the planets, but even the sun himself constantly moves. Were all the planets in a straight line on one side of the sun, then the common centre of gravity of the whole system would be distant from the sun's surface about $\frac{1}{4}$ of his semidiameter. But as such a particular position of the planets can only happen once in a period of many years, therefore the common centre of gravity of the whole system is generally very near the sun's surface, or within his body.

III. *Of*

III. *Of ſome properties belonging to Water, Air, &c. commonly called Fluids.*

1. All fluids, except air, are incompreſſible; that is, they cannot, by any force be compreſſed into a leſs ſpace than what they naturally poſſeſs. This is proved by the *Florentine experiment* of filling a globe of gold with water, which when preſſed with great force, cauſes the water to tranſude or iſſue through the pores of the maſſy gold, in form of dew, all over its ſurface.

2. If a body, whoſe weight is exactly equal to the weight of its bulk of a fluid, be immerſed therein, it will have no tendency to aſcend or deſcend, but continue in any part indifferently. But if it be lighter than an equal bulk of the fluid, it will aſcend and float, and diſplace ſo much of the fluid as that whoſe weight is equal to that of the body. Laſtly, if it be heavier than an equal bulk of the fluid, it will deſcend, and loſe juſt ſo much of its weight, as is equal to the weight of its bulk of the fluid.—Hence, the quantity of water that a ſhip displaces, is exactly equal in weight to that of the ſhip's hull, maſts, rigging, and cargo. And were the weight of theſe greater than that of the bulk of the ſhip's hull, ſhe would neceſſarily ſink.

3. *Air* is an *elaſtic** fluid that can be condenſed and rarified, compreſſed and expanded. It is therefore denſeſt on the earth, and the further

* Water has alſo a ſmall degree of elaſticity; in expands when congealed.

ther it is distant therefrom, the more it is rarified, and so by degrees arrives at a vacuum. Its height is about 44 miles, and its density is diminished about one half at the distance of a mile from the earth.—Clouds float in a medium of air whose density is just equal to theirs. They are produced by the heat of the sun, that expands small watery particles into bubbles; which, becoming lighter than the air on the earth's surface, necessarily ascend till they arrive at a medium of air equal in weight with themselves; where, being in a colder region, they condense and collect together, by means of their mutual attraction: and consequently, becoming heavier than the air, they fall down in drops of rain, or perhaps in hail or snow, if the regions through which they pass be so cold as to congeal them.—The height of the clouds is generally from half a mile to a mile and a half, though they sometimes come to the earth, as in fogs or mists. The lightest clouds are the highest.

IV. *Of Lightning and the Rainbow.*

A thunder storm usually happens in calm weather. A dark cloud is observed to attract others to it, by which it continually increases in magnitude and apparent density. When the cloud is thus grown to a great size, its lower surface swells in particular parts towards the earth. During the time that the cloud is thus forming, flashes of lightning are seen to dart

from one part of it to another, and often to illuminate the whole mass. When the cloud has acquired a sufficient extent, the lightning strikes the earth in two opposite places; the path of the lightning lying through the whole body of the cloud and its branches.

The rainbow is formed in general by the reflection of the rays of the sun's light from the drops of falling rain; though it is also formed by cascades, fountains, and waves of the sea, whose waters fall in drops. The beautiful colours of the rainbow may be seen in soapy bubbles blown from a pipe. Rainbows are always opposite to the sun.

SECTION VII.

Of Chronology.

CHRONOLOGY is that science which treats of *Time* and its divisions; and teaches how to distinguish the period or point of time when any transaction happened. The term is derived from the Greek, *Chronos*, time, and *Logos*, a discourse.

Time, considered in itself, without any regard to external objects, always flows equally or uniformly; and this is called *absolute time*, or *simple duration*, which from its nature is infinite both ways: that is, without beginning or end. So that one infinite part of absolute time, or *eternal duration* has already elapsed: but the other infinite part remains unelapsed, and will continue so throughout the boundless ages of eternity.

But

But by time we commonly mean no more than a certain part of duration, measured out to us by the uniform motion of some sensible object; though this is properly *relative* or *apparent time*. And the motion of the celestial bodies, particularly of the sun and moon, have been agreed upon, by the common consent of mankind, to measure time by.

The divisions of time are years, months, weeks, days, hours, minutes, seconds, &c.—The length of our year is the space of time in which the earth moves round the sun; which is exactly 365 days, 5 hours, 48 minutes, and 57 seconds. This is called the true Solar or Tropical Year, because the sun completes his apparent revolution in the ecliptic in that time; that is, his motion from any tropic or equinox, to the same again, is performed in 365 days, 5 hours 48 minutes, and 57 seconds, which is the true length of the year.—A Siderial Year is the time in which the sun apparently moves from any fixed star to the same again; and is 20 minutes, and 17½ seconds longer than the true solar year. This year is of little use except in astronomy.—A Lunar Year is the time measured by twelve revolutions of the moon, from the conjunction with the sun to the same again; and is 10 days, 21 hours, and 41 seconds shorter than the true solar year. This defect is the foundation of the *epact*, which in round numbers is estimated at 11 days.

The *Civil Year* is that which is in common use among the different nations of the world; of

of which ſome reckon by the lunar, but moſt by the ſolar. The Civil Solar Year contains 365 days for three years together, which are called *common years*; and then come what is called *Biſſextile* or *Leap Year*, which contains 366 days. This is alſo called the *Julian Year*, on account of Julius Cæſar, who appointed the intercalary, or odd day, every fourth year, thinking thereby to make the civil and ſolar year keep pace together. And this day being added to the 23d of February, which in the Roman calender was the ſixth of the calends of March; that ſixth day was twice reckoned, or the 23d and 24th were reckoned as one day, and was called *Bis ſextus dies*, or *a double ſixth day*: and hence comes the *Biſſextile* for that year. But in our common almanacs, this day is added to the end of February.

The civil year thus ſettled by Julius Cæſar, was ſuppoſed to contain 365 days and 6 hours, which is more by 11 minutes and 3 ſeconds, than the true ſolar year. Therefore the times of the equinoxes and other ſeaſons of the year muſt go backward, and fall out earlier by one day in every 130 years. This brought Pope Gregory XIII. to think of reforming the ſtile; for he found that at the time of the Nicene Council, (A. D. 425) the vernal equinox fell on the 21ſt of March: but in his time, (A. D. 1582) it happened 10 days ſooner. And hence great confuſion muſt attend the celebration of Eaſter, and other moveable feaſts, which would at length fall out at the time of the other immoveable

moveable feasts. Therefore he ordered 10 days to be struck out of that year; whereby the time of the vernal equinox was again brought back to the 21st of March. And to make the true and civil year henceforth agree, three bissextile years in 400 were to be omitted. This, which is called the Gregorian, or New Stile, did not take place in Britain, or in these States (then British colonies) until the year 1752, when 11 days that had been elapsed, were struck out of that year by act of parliament.—The civil year, according to the plan of the new stile, so nearly agrees with the true solar year, that there will not happen an error of one day in the space of 6000 years. And hence this is properly the true stile.

A *Month* is either *Astronomical* or *Civil*.—The astronomical month is said to be *periodical* or *synodical*. The periodical month is the time spent by the moon in revolving round the earth, which is 27 days, 7 hours, and 43 minutes. The synodical month, called a Lunation, is the time from the moon's parting with the sun at a conjunction, and returning to him again, which is 29 days, 12 hours, and 44 minutes. The civil months are those framed for the uses of civil life: and are different as to their names, number of days, and times of beginning, in several different countries.—Here follow the twelve months of the year, as used by us, with their derivations explained:

January, from *Janus*, the most ancient king of Italy, whom the people afterwards deified, and

and kept this month ſacred to him.—February, from the Latin, *Februo*, to purify or cleanſe by ſacrifice. This was the laſt month in the year among the ancient Romans, wherein they uſed purifications and ſacrifices for the ghoſts of the dead.—March, from the Heathen god, *Mars*, to whom this month was kept ſacred.—April, from the Latin, *Aperio*, to open or unfold; becauſe in this month the ſpring begins to diſcloſe all the beauties of the vegetable creation.—May, from *Maia*, a Heathen goddeſs, to whom this month was kept ſacred.—June, from the Heathen goddeſs *Juno*, ſome ſay: but becauſe this month was never held ſacred to her, others ſay from the Latin, *Juvenis*, a youth: for in this month nature appears like a perſon in the bloom of youth.—July, from *Julius* Cæſar.—Auguſt, from *Auguſtus* Cæſar.—September, from *Septem*, ſeven.—October, from *Octo*, eight.—November, from *Novem*, nine.—And December, from *Decem*, ten: For theſe were the ſeventh, eighth, ninth, and tenth months, reckoned from March, when the year formerly began.

The variation in the length of the Months, may be eaſily remembered by the committing to memory the following lines:

Thirty days hath September,
April, June, and November,
All the reſt have thirty-one,
Except February alone,
To it we twenty-eight aſſign,
But Leap year gives it twenty-nine.

A *Week* is a ſucceſſion of ſeven natural days. The firſt of which is called by us Sunday, becauſe

cauſe this day was ſet apart by the ancient Saxons for the worſhip of the *Sun*: the ſecond we call Monday, becauſe on this day the *Moon* was formerly worſhipped: the third is called Tueſday, becauſe on this day the ancient Saxons paid their devotions to a certain idol called *Tuiſco*; the fourth is called Wedneſday, becauſe it was formerly appointed for their idol *Woden*; the fifth is called Thurſday, from their worſhipping the idol *Thor* on this day: the ſixth is called Friday, becauſe on this day they adored a certain goddeſs called *Frida*; the ſeventh is called Saturday, becauſe it was appointed for the worſhip of an idol called *Seater*.

As moſt of the names of our months, and all the names of the days of the weeks have had their origin in heathen ſuperſtition, they have therefore become offenſive to ſome religious ſocieties, who have accordingly ceaſed to uſe them, and inſtead thereof, they diſtinguiſh the months and days of the week by their numbers. For inſtance, January they call *Firſt Month*, February, *Second Month*, &c.; ſo, in like manner, Sunday they call *Firſt Day*, Monday *Second Day*, &c. Others make no ſcruple of uſing all the names except Sunday, which they reject, and call it the *Sabbath*, or *Lord's Day*, in commemoration of the reſurrection of Jeſus Chriſt, our Lord.

A day is either *natural* or *artificial*. The natural day contains 24 hours; the artificial is the time from ſun riſe till ſun ſet. The aſtronomical day begins at noon, becauſe the increaſe and decreaſe

decreaſe of days in all places diſtant from the equator, renders the time of the ſun's riſing or ſetting improper to begin the day; and hence aſtronomers take the time of the ſun's paſſing the meridian for the limit of the diurnal revolution.—The Americans, Britiſh, Dutch, French, Germans, Portugueſe, Spaniards and Egyptians, begin the *civil day* at midnight: The ancient Greek, Jews, Bohemians, Sileſians, with the modern Italians and Chineſe, begin it at ſun-ſet; And the Babylonians, Perſians, Syrians, with the modern Greeks, at ſun riſe.

An hour, minute, ſecond, &c. are known to every one, and therefore we judge an explanation thereof unneceſſary.

As there are certain fixed points in the heavens from which aſtronomers begin their computation, ſo there are certain points of time from which hiſtorians begin to reckon. And theſe points or roots of time are called *Æras* or *Epochs*. The moſt remarkable æras are thoſe of

The Creation - - - - before Chriſt,	4004
The Flood - - - - - - - - - - - -	2348
The Greek Olympiads of four years, each, beginning - - - - - - - -	776
The building of Rome, - - - - - -	753
The birth of Chriſt, - - - - - - -	A. D.
The Mahometans from the flight of Mahomet, called Hegira - - -	622

Whereof the birth of Chriſt is that uſed by us, and by all the Chriſtian world. This is commonly called the *Chriſtian æra*, and was firſt

ſettled

settled by Dionysius the less, a Roman abbot, in 516; who, as astronomers prove, made a mistake, and fixed the birth of Christ four years too late. This they deduce from an eclipse of the moon that happened before Herod's death, when Christ must have been born. But according to the Vulgar Æra of Dionysius he could not have been born for more than three years afterwards: Hence, at that rate, the year 1809, ought to be 1813.

A Cycle is a perpetual round or circulation of the same space of time. The Cycle of the sun is a revolution of 28 years, in which time the days of the months return again to the same days of the week; the sun's place to the same signs and degrees of the ecliptic on the same months and days, so as not to differ one degree in 100 years; and the leap years begin the same course over again, with respect to the days of the week, &c.—The cycle of the moon, commonly called the Golden Number, is a revolution of 19 years, in which time the conjunctions, oppositions, and other aspects of the moon, are within an hour and an half of being the same as they were on the same days of the month 19 years before.—The Dionysian Period is compounded of the solar and lunar cycles, multiplied together. After which the day of the month, day of the week, and moon's age will return in the same order as before.

The year of Christ's birth, according to the vulgar æra, was the 9th year of the Solar Cycle, the 1st year of the Lunar Cycle or Golden Number. Therefore,

1. To find the year of the Solar Cycle.

Rule. Add 9 to the given year, and divide by 28; the remainder is the Cycle for the given year: but if 0 remain, 28 is the cycle.

Example. Required to find the year of the Solar Cycle for 1809?

9

28)1818(64
168 *Ans.* 26.

138
112

26

2. To find the Golden Number.

Rule. Add 1 to the given year, and divide by 19; and the remainder is the Golden Number; but if 0 remain, 19 is the Golden Number.

Example. Required the Golden Number for 1809?

1809
1

19)1810(95
171 *Ans.* 5

100
95

5

3. To find whether any year be a Leap Year or not.

Rule. Divide the given year by four; if nothing remains, then it is a Leap year; but if any number remains, it is just so many years after leap year.

Example. I desire to know if 1809 be a leap year or not.

4)1809

452-1 *Ans.* First after Leap year.

4. To find the Epact, or age of the moon on the last day of the old year.

Rule. Subtract 1 from the golden number, then multiply by 11, and divide by 30; the remainder is the epact.

Example. Required the epact for 1809? From the golden number 5 found as above subtract

1

4

11 *Ans.* 14.

30)44(1

30

14

5. To find the Moon's Age on any day of any month throughout the year.

Rule. To the epact for January add 0, February 2, March 1, April 2, May 3, June 4, July 5, August 6, September 8, October 8, November

November 10, and December 10, and to this add the given day of the month, and you have her age, except the sum exceeds 30; in which case subtract 30, and the remainder is her age.

Example. Required the age of the moon on July the 4th, 1809?

Epact, found as above	14	
Add, for July	5	
Day of the month	4	*Ans.* 23 days old
	23	

6. Find how many years are in the Dionysian period.

Example. Multiply 28 the Solar cycle, by 19 the Lunar cycle.

	28	
	19	
	252	
	28	
Ans.	532	*years.*

The first seven letters of the Alphabet are placed in the calender to show on what day of the week the days of the month fall throughout the year: And because one of these letters must necessarily stand against Sunday, it is therefore printed in a capital form, and called the Sunday, or Dominical Letter.——Now, since a common year contains 52 weeks and 1 day, it is plain, that on whatever day of the week the year

year begins, the next year will begin on the next day of the week. But in leap year, which contains 52 weeks and 2 days, the first after leap year must begin two days in the week farther on. When January begins on Sunday, A is the Dominical letter for that year. Then, because the next year begins on Monday, Sunday will fall on the seventh day, to which is annexed the seventh letter G; which, therefore, will be the Dominical letter for all that year. And as the third year will begin on Tuesday, the Sunday will fall on the sixth day; therefore F will be the Sunday letter for that year.—Whence it is evident, that the Sunday letter will go annually in a retrogade order, thus, G, F, E, D, C, B, A. And in a course of seven years, were they all common ones, the same days of the week and dominical letters would return to the same days of the month. But because a leap year contains 52 weeks and 2 days, therefore, if it begins on Sunday, the next year will begin on Tuesday; and hence the letter F, and not G, must be the Dominical letter for that year; but G is inserted after the 29th of February, as the Dominical letter for the leap year. Therefore every leap year has two Dominical letters, viz. one for the months of January and February, and another for the remaining months.

7. To find the Dominical or Sunday letter.

Rule. To the given year add its fourth part omitting fractions, divide the sum by 7, and if there be no remainder it is the Sunday letter; but

but if any number remains, then the letter standing under that number is the Dominical letter as follows:

0	1	2	3	4	5	6
A	G	F	E	D	C	B

Example. Required the Dominical letter for 1810

Add 4th part 452

7)2262(323
21

16
14

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Remains - - - - 1 *Ans.* G will be the Sunday Letter for the year 1810.

Note. In Leap years, the letter found will be the Sunday letter from the beginning of March, and the one preceding it, the letter for January and February.

8 To find on what day of the week, any proposed day of the month falls on.

Rule. Having found the Dominical Letter as above, or remembering it, the day of the week on which the month begins, will be known, by the following lines:

At Dover Dwells George Brown Esquire,
Good Christopher Finch And David Friar.

Where the first letter of each word answers

to

to the letter of the first day of the month, from January to December.

Example. What day of the week does the 10th of May, 1810 fall on?

The Dominical letter for that year is G.

The first of May by the verse is B. So, B 1, C 2, D 3, E 4, F 5, G 6. Sunday being the 6th, May begins on Tuesday. Then Tuesday 1, Tuesday 8, Wednesday 6, Thursday 10.

Ans. The 10th of May, 1810, falls on Thursday.

Easter day is always the next Sunday after the full moon that happens after the Vernal Equinox, or 21st of March; which is easily determined by the moon's age; for the full moon is on the 15th day of her age, and if the full moon be on Sunday, Easter is the Sunday after. But as this and the other moveable feasts are uninteresting to many of our readers, we have therefore deemed it unnecessary to be particular on the subject; but refer those who wish to be more fully acquainted therewith, to the Episcopal Common Prayer Book, or to the Roman Catholic Manuel, where rules and tables for finding the Epact, Golden Number, Dominical Letter, Easter day, &c. are usually inserted for every year, for many centuries to come.

THE END.